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PRESIDENT'S ADDRESS.

MEDICAL ORGANIZATION: ITS PURPOSES AND POSSIBILITIES.

A. B. COOKE, NASHVILLE, TENN.

IT IS becoming that my first word on this occasion should be one of appreciation and gratitude. The presidency of one's State Association has always seemed to me the highest honor to which a medical man could aspire; and especially is this true of our own organization, which with this meeting rounds out a long and honorable existence of three-quarters of a century. To have been deemed worthy to occupy a position which during this long period has been filled by man, many of whom in the early days contributed in no small degree to the making of medical history, and whose names are still revered as masters of their calling, is in itself no slight distinction. But the chief source of gratification in such preferment lies in the personal tribute it conveys. Aside from the approval of his own conscience, there is no keener satisfaction in life to the man whose heart is right than to feel that he has the confidence and esteem of those who know him best.

Formal words are always inadequate to express the deepest feeling. Let the sincerity of this simple acknowledgment atone for all it lacks in grace and fervor, and believe me when I say that the Tennessee State Medical Association will never have a president more deeply sensible of the high honor of the office nor more genuinely appreciative of all that his elevation to it implied.

Not the least difficult thing about a presidential address is the choosing of a theme. Medical organization is not a subject which especially appeals to my taste and inclination. But the remarkable impetus which the movement has received in recent years and the rapid multiplication of activities and interests which have followed in its train, are such as at this time peculiarly

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to challenge attention and merit our earnest consideration. What does it mean? Are the purposes of medical organization worthy ones, and, if so, are we giving to it, individually and as a profession, the active support and intelligent co-operation it deserves?

PURPOSES.—The purposes of medical organization are so well and clearly set forth in Article II of our Constitution that I may be pardoned for quoting it in full: "The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Tennessee and to unite with similar associations in other States to form the American Medical Association, with a view to the extension of medical knowledge and the advancement of medical science, to the elevation of the standard of medical education and to the enactment and enforcement of just medical laws, to the promotion of friendly intercourse among physicians and to the guarding and fostering of their material interests, and to the enlightenment and direction of public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life." Certainly no more inspiring declaration of principles could be formulated, nor can any fair-minded man refuse to concede their nobility of conception and beneficence of intention. Yet the appeal they make to the physicians of the State at large is pitifully barren of results. Of the more than 3,000 physicians in Tennessee, only about one-third are members of this society. Of the ninety-six counties in the State only fifty-seven have any semblance of a county society, and a considerable number of this fifty-seven have nothing but a semblance. Why is this? There must be some explanation for the existence of such an anomalous condition in a State which along other lines takes high rank for progressiveness and enlightenment. While primarily, of course, the cause of this deplorable state of affairs is to be sought in the apathy of the individual members of the profession, viewing the question in a broader light, it seems evident to me that a larger portion of the blame is due to the apathy of the societies themselves. Let me make my meaning clear by pointing out one of the conspicuous delinquencies of our organization in this respect. It is specifically provided by our own

Constitution that the members of the Council (composed of the living ex-presidents) shall be the official organizers for their several districts; that they shall visit each county in their respective districts *at least once a year* for the purpose of organizing county societies where none exist, for inquiring into the condition of the profession and arousing interest and enthusiasm; and that they shall perform other services as occasion may arise. Yet, so far at least as the records disclose, that august body has for years entirely ignored the important functions specified, and from the viewpoint of results accomplished, the Association would be as well off without as with a Council. It is not my purpose to say unpleasant things in this connection, nor to point out at this time wherein the weakness lies. But it is apparent that under the present order of things the Association is neglecting one of its most momentous duties, namely, that of bringing into active fellowship the entire profession of the State; and until this duty is recognized as paramount and earnestly grappled with, the highest purposes of our organization must remain impossible of attainment.

Much more might be said in extenuation of the indifference of the individual physician—and yet by no means enough to excuse it. Unlike that of other professions, the work of the physician is not performed in the limelight where the plaudits of the public may be evoked to encourage and inspire. Instead, his labors are of a strictly personal character, and in the seclusion of the sick-room he must face the issues of life and death, often alone and without even the comfort of moral support. It is not strange that taciturnity, introspection, self-sufficiency, sensitiveness, intolerance, moodiness, and similar characteristics should come to be parts of his very nature. And then, as responsibilities increase and the demands upon his time and strength become more exacting, leisure for study and social diversion diminishes and one by one the ideals of his student days vanish and are forgotten. These are the men, my fellows, thoughtful, earnest, and conscientious, albeit somewhat given to suspicion, who need the medical society, not alone to help them to be better doctors, but also to save them from the ruts and pitfalls of the lonely roads they travel.

Now, what has the Medical Society to offer to counteract the

tendency just mentioned, and why should it appeal especially to physicians who live and labor in fields remote from medical centers? First, there is its *educational value*. The great majority of physicians who live in towns and rural districts are general practitioners—in the nature of the case must be—and they above all others need to realize that medical education is one of those never-ending tasks to which the diploma is in reality only an introduction. So numerous and frequent are the additions to medical knowledge that what was taught on a given subject when in college may in a very few years become ancient history. Medical journals, medical books, and medical societies, supplemented, perhaps, in the exceptional instance by a brief postgraduate course, are the only means by which the practitioner may keep pace with the progress of his profession. The value of clinical experience is not to be underestimated, if by careful study it is converted into clinical wisdom. But knowledge of a disease does not always consist in the number of cases seen. A man who has seen and treated 500 cases of pneumonia may know far less about it than the man who has seen and studied 50 cases. "Intellectual laziness is the killing vice of the doctor" (Osler). Often, it is true, it is the result of physical weariness. But no physician has the right to assume that his knowledge is complete on any subject. Justice to his patients and the repose of his own conscience demand that he should *know* that he is doing the best that could be done in every case. Years of practice and extended experience are valuable assets only if they do not beget a feeling of self-satisfaction. Peculiarly applicable to the medical profession is Pope's sage comment:

"A little learning is a dangerous thing.
Drink deep or taste not the Pierian spring.
There shallow draughts intoxicate the brain,
And drinking largely sobers us again."

A well-conducted medical society is an invaluable aid to the busy physician. He may be the hardest worked man in his community and yet, in many respects, be not so well posted as his young neighbor fresh from college. The reading of papers and reports of cases, followed by free informal discussions to which each one contributes according to his ability, in themselves constitute a post-graduate course, which none can afford to despise.

It is probably true that no man, however brilliant and well posted, ever attended a meeting of this kind who did not derive some benefit from it—that is, if his mental attitude was receptive and earnest instead of critical.

And then there is the *social value* of the medical society. It has always seemed to me that the bickerings and jealousies and bitter antagonisms for which our profession is so widely noted, are due in the main to lack of personal acquaintance. Man for man the members of the medical profession are not excelled in the qualities which go to make true nobility of character by those in any walk of life. Indeed, for self-sacrificing devotion to duty, for generosity, for unostentatious heroism, physicians have a reputation which is recognized of all men. Yet, sad and pitiful to confess, in many localities they dwell together in less accord than is shown by rival tradesmen. This can only be because they do not understand each other. Let me briefly mention what I consider the two most prolific causes of professional dissension. One is tale-bearing patients. So intimate and personal is the relation between doctor and patient, so real and deep does the mutual attachment become, that a strictly professional attitude cannot always be maintained, and, prompted by a friendly but mistaken interest, patients will often, perhaps innocently, repeat gossip which contains the germs of discord. As Osler says in one of his splendid addresses, "It is the confounded tales of patients which so often set us by the ears; but if a man makes it a rule never under any circumstances to *believe* a story told by a patient to the detriment of a fellow-practitioner—even if he knows it to be true—though the measure he metes may not be measured to him again, he will have the satisfaction of knowing that he has closed the ears of his soul to ninety-nine lies, and to have missed the hundredth truth will not hurt him."

The other most fertile source of ill-feeling is to be found in the disposition on the part of some physicians to regard a certain territory or neighborhood as private property and to look upon any other physician who invades it as an interloper and intruder. Most often this disposition is to be seen among the older physicians. I may speak thus frankly without offence on this delicate point, for like the maiden

"Standing with reluctant feet
Where womanhood and childhood meet,"

I have just reached that uncertain period in my professional life when the younger men will not permit me to be classed with them and, for a while at least, I refuse to be classed with the older ones. This attitude on the part of the older physician is all wrong. He holds no title-deed to any particular area of practice, and should recognize that sooner or later he must meet competition. Let him do so with a magnanimous spirit. If he would extend the hand of welcome and fellowship, the young man would gladly meet him more than half way, and from the beginning their relations, instead of being strained and antagonistic, would be mutually cordial and helpful.

Toward the dissipation and prevention of these and other causes of professional dissension, the medical society offers the most effective means. Meeting in a friendly social way for the earnest discussion of matters of grave common interest, refusing to recognize that differences of opinion on matters of comparative unimportance are sufficient grounds for personal animosities, attending the sessions as regularly as may be and always with the determination to do and be one's best—soon in a society pervaded by such a spirit there must needs be a genuine fellowship founded on mutual respect which only required a better acquaintance for its development. Fortunate indeed is the community in which such a spirit prevails among its medical men. Misunderstanding, the parent of malice and envy, done away with, each physician recognizing in his neighbor instead of a competitor merely, a colleague inspired by the same honorable motives and lofty ideals as himself, there would inevitably result a harmony and a true fraternity from which blessings would flow alike upon the public and the profession.

Above all things, brethren, let us realize, wherever our lots may be cast, that life is too short and time too precious for the petty jealousies and uncharitableness which manifest themselves as effectively in the shrugging of the shoulder, the arching of the eyebrow, or the supercilious grin, as in the spoken word.

"We scatter seeds with careless hand,
And dream we ne'er shall see them more:
But for a thousand years
Their fruit appears
In weeds that mar the land
Or healthful shore.

"The deeds we do, the words we say,—
Into still air they seem to fleet,
 We count them ever past;
 But they shall last,—
In the dread judgment they
 And we shall meet.

"I charge thee by the years gone by,
For the love's sake of brethren dear,
 Keep thou the one true way,
 In work and play,
Lest in that (other) world their cry
 Of woe thou hear."

It is entirely proper that reference be also made to the *business value* of the medical society. I am aware that this is not a popular topic to touch upon—the bugaboo of "commercialism" is usually scared up by the bare mention of it. Yet it should not be so. The practice of medicine is not and can never be a commercial pursuit. The worth of a well-equipped physician's services cannot be expressed in monetary value. But, eliminating this consideration and looking only to the number of hours a day devoted to their work, physicians are the most inadequately compensated of any class of men whose living depends upon their labor. Whoever heard of a wealthy doctor who accumulated his riches strictly from the practice of his profession? It has recently been estimated that the average income of the 125,000 physicians in the United States is but little, if any, more than \$2.00 a day!

It is not my purpose to intimate that the medical society, by trades-union methods, should undertake to remedy this condition. But I would intimate—nay, I would boldly assert—that one of its proper functions is to take account of the material welfare of its members by protecting them from injustice and imposition, whether originating within or without the profession. It is well known that one or two misguided physicians in a town or county, by adopting ill-advised policies, may so demoralize the profession in their community that strife and discord as well as great pecuniary losses will result for all. Such men are not usually corrupt; they simply have not been brought to realize that the interests of one in such matters are always, in the end, the interests of the entire profession. I believe most firmly that the business side of the practice of medicine is a proper and legitimate subject for

discussion in medical societies, and, furthermore, that the county societies would profit materially by setting apart one or more meetings each year for this specific purpose. For after all is said, we are men before we are physicians, and it behooves us to remember that the most sacred obligations a man has to face are those he owes to the loved ones dependent upon him. Not one jot of the high honor and dignity of our calling would be sacrificed by training the people among whom we live and labor to understand that we recognize these obligations and propose to live up to them. The improvidence of physicians and their lack of business sense are standing jokes, and the imputation they contain certainly cannot be considered conducive either to our own respect or to that of an intelligent public.

The objects of medical organization heretofore referred to are those which chiefly concern the profession itself.

Let us now consider for a few moments the value of the medical society to *the public*. It would be superfluous in this presence to more than allude to the fact that the great central purposes of the medical profession, the very *raison d'être* of its existence, are the relief of human suffering and the cure and prevention of disease. To the true physician these are the controlling motives of his every endeavor, and in the pursuit of them as a rule the unworthy soon drop out and the unfit are soon eliminated. Whatever agency, therefore, tends to make of the physician a better doctor and a better man, in a very deep sense must be of value to the public which he serves. Happily the public is "getting wise," as the saying is, along this line. It requires no great stretch of the imagination to foresee the time when in the selection of a physician one of the important points of inquiry will be, does he attend his medical society; does he participate in its work? Speed the day!—for its advent will mean the establishment of a standard from which results beneficent alike to the public and the profession must follow.

But the value of medical societies to the public is not to be found alone in such indirect benefits, real and important though they are. They may be, and should be, made active agencies for the awakening of popular interest and the dissemination of needed instruction upon the subjects of public hygiene and sanitation and the great duties of citizenship in connection with these

problems. It is often charged that the people are apathetic upon these subjects. True; but their apathy is usually due to their ignorance. It is inconceivable that parents and public officials should be wilfully indifferent to questions which vitally concern the health and happiness of their families and communities. In this public function, then, the medical society should find one of its richest fields of usefulness. What matter if the education of the laity should result in pecuniary loss to the profession? Among the several virtues which unite to make our profession "the noblest Roman of them all" not the least is the voluntary sacrificing of its own interests to the interests of the masses. No other calling since the history of man began has been distinguished by the altruistic effort to do away with the very purpose for which it existed. He is an unworthy member of the medical profession who does not in his deepest soul echo the sentiment that "we are here, not to get all we can out of the life about us, but to see how much we can add to it."

A shining example of what a medical society can be and do in this respect is furnished by a certain county society in Middle Tennessee, which has constituted a series of popular addresses along the lines indicated. Several times a year some member of the profession is invited to speak to the general public on matters of a helpful and instructive nature. The addresses are usually given on Sunday afternoons, and so far, I am told, the interest has been keen and the appreciation great. Who can doubt that from this wise policy inestimable benefits will result both to the public and to the profession in that county?

POSSIBILITIES.—Now what shall we say of the possibilities of medical organization? The present scheme of reorganization is only six years old. Yet in that short time the advantages which have been realized are so positive and definite that the promise for the future seems bright indeed. It is not my purpose to pose as a champion of the American Medical Association, nor of the men to whose hands the direction of its destinies is at present committed. In the light of the results accomplished neither it nor they require defense. But in view of the prejudice which to a limited extent is evidenced in certain quarters, it is proper to note some of the benefits which have already accrued, and with these and others which they foreshadow in mind to ask ourselves

whether we can better safeguard the great interests at stake by criticism or co-operation.

To those who believe in the soundness and equity of a representative form of government the plan whereby the county society is made the unit of organization must commend itself as both wise and just. The great underlying purpose of all medical organization is to reach the individual physician—to cause him to realize that he has other responsibilities and duties than those which pertain to his immediate clientele, to broaden his mental vision, to awaken him to the fact that association with his fellows will enable him to mould public opinion and wield an influence in the affairs of men which are not possible in any other way. The greatest criticism to which physicians as a class have been justly liable in the past is that they have seemingly failed or refused to recognize their obligations as citizens. Possessed of special knowledge which, if utilized in a concerted way, would, in the space of a single generation, result in an immeasurable increase in the sum of human happiness, they have yet been content in every phase of civic activity to remain obscure and inert. Far be it for me to even intimate that physicians, individually or as a body, should enter into politics, as the term is ordinarily employed. I know of no means by which the dignity and respect so essential to the effective pursuit of their calling would be more surely sacrificed. But I do maintain that questions which they alone are in position to understand and expound involve a public duty which neither regard for tradition nor fear of consequences justify them in attempting to evade.

In this systematic effort, then, to reach the individual physician and induce him to affiliate with his local society, and in the possibilities embraced in such affiliation, I find one of the strongest defenses of our present scheme of organization. To mention more briefly a few other appeals which it makes for the confidence and support of the profession, there are, first, the propaganda on the subjects of patent nostrums and food adulteration, and the salutary pure food and drug laws, Federal and State, which are the direct outgrowths of it. True, in this agitation, the powerful aid of certain lay publications was had; but the fact cannot be questioned that without the active and aggressive championship of the organized medical profession these great reforms would have been

delayed many years, if, indeed, their accomplishment had ever been possible. In this connection the splendid work of the Council on Pharmacy and Chemistry of the American Medical Association should be mentioned. For the first time in the history of medicine in this country an authoritative and reliable means is at our disposal for protecting ourselves and our patients against the fraud and imposition of unscrupulous commercial interests. The startling exposures already made constitute a most convincing demonstration of the possibilties of community of interest in our profession.

Of the great work of the Committee on Education and the Committee on Legislation I shall not stop to speak in detail. I had the privilege of attending the annual meeting of the latter committee in Chicago last December, and a more earnest, more intelligent, more determined body of men, each one imbued with the highest ideals of service to the public and to his profession, it has never been my pleasure to meet. When the far-reaching plans which these committees have on foot meet with fruition, as I confidently believe they will, the organization which created them will require no justification at the hands of any man. Beneficent in conception and broadly philanthropic in scope as are those plans, realization of the magnificent possibilities they contain only waits upon our earnest and united co-operation. I would not disparage the usefulness of the silent plodders in our ranks. But to me it seems a peculiar privilege to live in this splendid new century when to be a physician is to have the opportunity of participating in however humble a capacity in the promotion of these and similar great movements.

The medical profession is only now awakening to a full appreciation of the enormous power for good it can wield. When each one of the 70,000 physicians in the United States who are not at present members of any medical societies comes to realize in his heart and reflect in his life the great truth that "none of us liveth to himself" alone, the cause of humanity will receive an impetus which cannot be measured, and the dawn of the medical millennium be many watches nearer. May the influence of the Tennessee State Medical Association continue in the future, as in the past, to be exerted in support of every worthy endeavor.

Let me close before I merit at your hands the comment which

a long-suffering little fellow made upon the new trustee of his school. Being newly elected to the office and imagining himself a great orator, the trustee took advantage of his first visit to address the school, which he did at tiresome length and with many repetitions. Finally, unable to endure more, a little chap sitting at the rear of the house stole out. Being asked when he emerged if the trustee had finished his talk, he replied: "Gee! yes, but de guy won't stop!"

As a final word, permit me to wish for our organization, and for you, its members, the fullest measure of success. A recent writer, whose name I regret to say I do not know, defines success in these beautiful words: "He has achieved success who has lived well, laughed often, and loved much; who has gained the respect of intelligent men and the love of little children; who has filled his niche and accomplished his task; who has left the world better than he found it, whether by an improved poppy, a perfect poem, or a rescued soul; who has never lacked appreciation of earth's beauty or failed to express it; who has always looked for the best in others and given the best he had; whose life was an inspiration, whose memory is a benediction."

This is true success. May each one of us attain it.

MINUTES

Of the Seventy-fifth Annual Meeting of the Tennessee State Medical Association, Held at Knoxville, April 14, 15, and 16, 1908.

FIRST DAY—Morning Session.

TUESDAY, April 14, 1908.

The Association met in the Circuit Court room of the Court-house, and was called to order at 10:15 A. M. by Dr. B. D. Bosworth, a member of the Committee of Arrangements.

Prayer was offered by the Rev. J. J. Taylor, pastor of the First Baptist Church, of Knoxville, after which Captain John M. Brooks, Mayor of Knoxville, was introduced and delivered the following

ADDRESS OF WELCOME.

Mr. Chairman, and Gentlemen of this Convention:

There are times and circumstances under which a physician is always welcome. This is one of the times, and this meeting one of the circumstances that makes you particularly welcome to the courtesies and civilities and the generous treatment of the citizens of Knoxville. I wish to give you, in behalf of our beautiful city, a cordial welcome, and to say to you that in making this welcome we wish to recognize the superior character of your profession. We wish to recognize the great advance that has been made in the science of medicine within the lives of all of us who are here today. I do not presume that there has been an advance in any science equal to that which has been achieved by the medical profession. I can recall when in this country the use of chloroform was unknown. I was wounded and treated at a time when, although there was chloroform, it was not possible to get it. No profession is doing more good nor advancing more than the medical profession, no profession is doing more to alleviate the sufferings of mankind, to meet and overcome the plagues that infest our bodies and the microbes that infest our food.

I must speak briefly, as I have another engagement at this hour, but before I leave I desire to call your attention to the fact that the medical profession or the art of healing is coextensive with Christianity, and today our missionaries, as Dr. Taylor here will tell you, are seeking the advice, the counsel, the assistance of medical men in all their mis-

sions. Today a missionary establishment without its doctor, without its surgeon, is like a bird without wings. It cannot advance. If you will take notice today the advance of the art of healing is coextensive with the advance of Christianity in the world. Where one goes the other must go, and today we look to the medical profession—the whole Christian world is looking to the medical profession—to take hold of and subjugate the powers of darkness in the world by illustrating the power of Christianity to heal not only the body, but the soul as well. (Applause.)

Gentlemen, on behalf of the citizens of Knoxville, I give you a cordial welcome to our town. (Applause.) ..

ADDRESS OF WELCOME BY DR. McCAMPBELL.

Dr. H. H. McCampbell delivered the following address of welcome on behalf of Knox County Medical Society:

Mr. Chairman and Members of the Tennessee State Medical Association:

If you will glance at your programs, you will see how it happened that I was selected to deliver the address of welcome on behalf of the local profession. However, the Committee of Arrangements informed me that the address of welcome was a mere formality, and that I was not expected to consume more than two minutes of your time at most. But I assure you that my welcome, though less eloquently expressed than that of his honor, the Mayor, is no less cordial and heartfelt. The profession of Knoxville esteems it a very great honor to entertain the State body, and our one regret is that you can come so seldom. But while we are the principal beneficiaries of your coming, we cannot but feel that your joy in living will be increased by the opportunity afforded of breathing for a few days the pure air of the mountains, and drinking nature's brew uncontaminated by the extract of the hop or the distillate of the corn; to escape for a time from the festive mosquito of the west, and from the political convections and night riders of the middle division of the State.

At this meeting matters of the greatest moment to the profession of our State are to be decided, and while there is a wide divergence of opinion as to what is best, we hope that nothing may be said or done which will bear a harvest of ill will between members; but that all may work together in harmony, seeking to accomplish the greatest good to the greatest number. It is especially appropos to say of the medical profession that old ideas must give way to the new, methods which are obsolete must be superseded by those which are up to date.

At the last meeting held in Knoxville it was wisely decided to abolish all forms of social entertainment therefore, we offer you none. However, I will say again that we deem it a pleasure and a privilege to have you with us, and you may call on us for anything we have in stock. (Applause.)

We hope and trust that you may be both edified and entertained, and that the profession of the whole State may be unified and harmonized by our thus fraternizing in the cause of humanity. (Applause.)

RESPONSE TO THE ADDRESS OF WELCOME.

The response to the address of welcome was made by Dr. W. D. Haggard, of Nashville.

Mr. President and Gentlemen:

I appreciate the privilege of acknowledging our sense of indebtedness to His Honor the Mayor and to Dr. McCampbell, the President of the Knox County Medical Society, for their courteous words of welcome. I regret that no poor words of mine can adequately and fittingly express how sensibly the Tennessee Medical Association, in whose behalf I am speaking, recognize the warmth and genuineness of your sentiments of generous hospitality.

We have journeyed far to visit this beautiful historic city of Knoxville, that like ancient Rome, "sits upon her seven hills and from her throne of beauty rules the world." We have come from the banks of the broad expanse of the Father of Waters; from the alluvial plains of West Tennessee; and from the Middle Basin, which our Tennessee poet calls "the dimple of the universe." According to his poetic fantasy it was once the bed of a shining silver lake, that one day mayhap wandered too far toward the Mississippi, and, finding her, went a willing captive to the sea; or perchance it disappeared thro' deep, cavernous, subterranean channels into the seething bosom of Mother Earth, but left its tears of parting in every silver spring that gushed from her emerald hillsides, and its farewell kiss in every sparkling rivulet that like a shining ribbon ran in and out of the shadows and the sun-glint.

We have come across the broad Cumberland plateau, in whose bowels hide the vast mineral wealth that will engage the endeavors of thousands yet unborn. We did not tarry in our journey to prospect, because the surgeons think that an appendix in the hand is worth two coal mines in the earth.

We have come to this queenly city, situated at the confluence of the Holston and the Clinch. It is the tide of the stately Tennessee which flowing past Knoxville encircles endearingly the feet of glorious old Lookout Mountain, and bending toward the fertile valleys beyond makes the mighty curve which gives the name to our beloved State. We wonder why Knoxville does not direct the river when it starts here to visit Nashville on its way to the Ohio. I don't blame the river for not going to Memphis; but surely the discovery of the old lady who said that it was a fortunate thing that nearly all large cities had rivers flowing by them had not been made before, because the Tennessee in its picturesque meanderings, completely ignored both the capital and the would-be metropolis, when it might have advantageously called at both places.

The Tennessee Medical Society does, why not the Tennessee River? I hope the Board of Trade of the good city of Knoxville will call the attention of the Rivers and Harbors Commission to this point. They can change anything if you will give them time enough.

I believe this is the largest gathering of medical men that has ever congregated in East Tennessee. We are glad to come here; we are not unmindful of the times when the hardy pioneer mountain physicians rode from the feet of the Unakas' across the plateau to the Cumberland on horseback to attend the meeting of this society. We cherish their memories, revere their hardihood, honor their devotion to the science of humanity to whose altar they consecrated their lives. We desire to emulate their valiant examples, and come here to fraternize with you, their descendants and successors, in the high and noble work of the accumulation of knowledge for the relief of the suffering and sickness of mankind.

At the conclusion of Dr. Haggard's remarks, Dr. S. R. Miller, Chairman of the Committee of Arrangements, announced that the committee had not provided any entertainment because a resolution previously adopted by the Association prohibited entertainment of any kind. As to hotel accommodations, the committee would see to it that every member was accommodated.

Dr. Bosworth then introduced President Cooke, who took the chair and proceeded with the work of the Association.

Dr. Haggard stated that the Tennessee State Committee of the International Congress on Tuberculosis had prepared a program of six papers on tuberculosis which it desired to have read some time during this meeting, and he moved that this symposium on tuberculosis be presented Wednesday evening in connection with the regular program, and that the papers be incorporated as a part of the proceedings. The motion was seconded by Dr. Leroy, and carried.

On motion of Dr. Crockett the official program for this meeting was adopted as printed.

The secretary read a communication from Mr. Brown Ayres, President of the University of Tennessee, inviting the members to visit the university.

Dr. Leroy moved that the invitation be acknowledged with thanks, and that as many members as possible avail themselves of the privilege and opportunity to visit the university.

Seconded and carried.

Dr. Hilliard Wood, of Nashville, then read a paper entitled

"Ophthalmia Neonatorum as a Sociologic Problem," which was discussed by Drs. Cullom, Leroy, Crockett, Crook, Richards, McNabb, Vaughan, Burdette, Carmichael, Kyle and Brandau, after which Dr. Haggard offered the following resolution:

Resolved, That the Tennessee State Medical Association endorses and earnestly recommends that Crede's method of the instillation of a freshly prepared two per cent solution (ten grains to the ounce) of nitrate of silver be employed in every newborn infant; and, further, that the suggestion for the examination and registration of midwives be referred to the Committee on Legislation, with the endorsement and request that they consider it with a view to introducing a bill in the next Legislature.

Seconded.

After the subject and resolution were further discussed by Drs. Coile, McGannon, Leroy, Sheddan and Vaughan, Dr. Crockett moved that the resolution, the preliminary part of it, be sent to the table, and the other part referred to the committee mentioned, which was seconded by Dr. Leroy and carried.

Dr. Leroy then moved that a committee be appointed to take up this subject, thoroughly investigate it, and report the findings at the next annual meeting.

Seconded and carried.

The paper of Dr. Wood was further discussed by Drs. Price, Bosworth, Frierson, Jones, and the discussion closed by the essayist.

- On motion of Dr. Crockett, the Association adjourned until 3 P.M.

Afternoon Session.

The Association reassembled at 3 P.M., and was called to order by the President.

Dr. C. E. Ristine, of Knoxville, read a paper entitled "Secondary Repair of Complete Perineal Laceration," which was discussed by Dr. Haggard, and the discussion closed by the author of the paper.

Dr. M. C. McGannon, of Nashville, reported "A Case of Obstruction of the Ureter."

The case was discussed by Drs. West, Berlin, Ricketts, Crook, and the discussion closed by Dr. McGannon.

Dr. B. Merrill Ricketts, of Cincinnati, read a paper (by invitation) entitled "The Appendicular Stump."

Dr. W. D. Haggard, of Nashville, followed with a paper entitled "Practical Deductions in the Diagnosis and Treatment of Appendiceal Infections."

Dr. W. J. Breeding, of Ravenscroft, read a paper on "Colic."

These three papers were discussed jointly by Drs. West, Leroy, Crook, Kyle, Berlin, McNabb, McGannon, Abernathy, and in closing by the essayists.

On motion, the Association adjourned until 8 p.m.

Evening Session.

The Association reassembled at 8 p.m., and was called to order by Dr. Charles P. McNabb, Vice-President for East Tennessee.

President Cooke was introduced, and delivered his address. He selected for his subject "Medical Organization; Its Purposes and Possibilities."

Dr. J. W. Handly, of Nashville, read a paper entitled "Two and a Half Years' Use of Intramural Injections of Salicylate of Mercury in the Treatment of Syphilis."

The paper was discussed by Drs. Crook, Leroy, McNabb, and in closing by the essayist.

Dr. G. E. Vaughan, of Clarksville, read a paper on "snoring, Mouth Breathing, Etc.,," which was discussed by Drs. Steele, Boyd, McNabb, Jones, Wood, Carmichael, and in closing by the author of the paper.

On motion of Dr. Leroy, the Association adjourned until 9 A.M., Wednesday.

SECOND DAY—Morning Session.

WEDNESDAY, April 15, 1908.

The Association met at 9 A.M., and was called to order by the President.

Dr. William Litterer, of Nashville, read a paper on "Treatment and Prevention of Tuberculosis by Tuberculin Immunization."

Discussed by Drs. Leroy, McNabb, Vaughan, and in closing by the essayist.

President Cooke introduced Dr. T. A. Reamy, of Cincinnati, as "one of the oldest and best known surgeons in the West."

Dr. Reamy expressed his gratification in having this oppor-

tunity to meet his confreres at such a gathering, and said it was always a great pleasure and source of delight to listen to papers and discussions.

The Secretary read a communication from the American Tuberculosis Exhibition, signed by the Director.

The Secretary stated that, in view of the fact that this exhibition is placed at the disposal of the profession and communities generally, and that its mission is philanthropic in character and intended for the education of the general public as well as for the profession, some recognition should be taken of it, and he accordingly moved that the President appoint a committee of three to take some action in regard to this matter and encourage correspondence on the part of county medical societies with this exhibition.

The motion was seconded by several, and carried.

Dr. George R. West, of Chattanooga, spoke on "Herniotomy."

His remarks were discussed by Drs. Crook, Happel, Kyle, Carmichael, Leroy, Bar, Vaughan, Cullom, Crockett, Abernathy, Zemp, Bryan, Sumpter, and in closing by Dr. West.

Dr. Jere L. Crook, of Jackson, read a paper on "Conservative Surgery in Crushing Injuries; A Clinical Report," which was discussed by Drs. Happel, Kyle, and in closing by the essayist.

On motion of Dr. Cullom, the Association adjourned until 3 P.M.

Afternoon Session.

The Association reassembled at 3 P.M., and was called to order by the President.

Dr. L. E. Burch, of Nashville, read a paper on "The Significance of Uterine Hemorrhage."

The paper was discussed by Drs. Haggard, Ristine, Barr, McCampbell, and in closing by Dr. Burch.

The President stated that Mr. L. P. Brown, of Nashville, the State Pure Food Inspector, was present, who desired to address the Association at some time.

On motion of Dr. Cullom, Mr. Brown was asked to address the Association this evening immediately preceding the presentation of the symposium on tuberculosis.

The Secretary read the report of the Committee on Memoirs, which was referred to the Committee on Publication:

REPORT OF COMMITTEE ON MEMOIRS.

Mr. President and Members Tennessee State Medical Association:

Your Committee on Memoirs make the following report:

While we have reason for congratulation that death has not invaded our membership to any great extent in numbers during the past year, yet we have met with a great loss in the few who have fallen by the way. We have to report the death of Drs. Richard Douglas, of Nashville; D. D. Saunders, of Memphis; G. A. Baxter, of Chattanooga; Thos. B. Brown, of Gallatin; B. F. Baird, of Villo, Hardeman County, and L. S. Price, of Mack, Lauderdale County. If any other names should come in later, we request the privilege of including them in this report. We present herewith memoirs of these worthy members furnished by various members of the Association and recommend that an hour be designated as a special order for the reading and consideration of them. We think this is due their memory. Dr. Douglas, as an active member and contributor to this Association, as author, teacher, surgeon and hightoned courteous gentleman, was brilliant and wonderfully gifted. Possessing as he did an untiring energy with a weak physical frame, he literally sacrificed himself to his profession and to suffering humanity, which brought his useful life to an untimely termination. In honoring his memory this Association will honor itself. Drs. Saunders and Baxter were active, honored members and both ex-presidents of this Association. Dr. Brown was a promising young man, and as the irony of fate would have it, was at the time of his death a member of the Committee on Memoirs. The others who have died were not so well known in the Association. We have been furnished a memoir of Dr. H. L. Sharp, of Lauderdale County, but as we do not find his name in the list of members in the published Transactions, we do not recommend it for publication. In closing this report we desire to impress upon members of the Association the importance of furnishing the Committee on Memoirs with data and information which is so necessary to make a satisfactory record of the life and work of our deceased members. We desire to commend our Secretary, Dr. Price, for his attention to the matter in sending notices to secretaries of county associations. Realizing as we do the difficulties which confront the Committee on Memoirs, we recommend that it be made the duty of the Secretary of each county association to mail to the Chairman of the Committee on Memoirs a report on memoirs, from his county society, not later than thirty days preceding the annual meeting of the State Association. This report to be mailed whether there has been any death in the county or not.

It is one of the noblest impulses of the human heart that prompts us to pay this last tribute to the memory of those who have labored side by side with us for the good of humanity and have fallen by the way.

Very respectfully,

G. W. MOODY, *Chairman.*

The Secretary read a communication from Dr. Simmons, General Secretary American Medical Association, relative to the organization of branches of the American Medical Association throughout the country, comprising different States, as, for example, the Southern Medical Association, and said that Dr. Simmons desired an expression of opinion in regard to the advisability of urging the members of various State Associations to unite in organizing component societies of the American Medical Association.

The Secretary moved that it is the sense of the Tennessee State Medical Association, that we approve the plan of organization of Branch Associations, and notify the General Secretary (Dr. Simmons) to that effect, so that the matter can be brought before the House of Delegates of the American Medical Association at the forthcoming meeting in Chicago.

Seconded and carried.

The Secretary read a letter from Mrs. S. S. Crockett, of the Health Department of the General Federation of Women's Clubs, with regard to the appointment of a Committee on Tuberculosis of the State Medical Association.

The President stated that the communication of Mrs. Crockett was anticipated this morning in the provision which was made for the appointment of such a committee as she asked for—a Committee on Tuberculosis of the State Medical Association, and the chair announced as the members of this committee Drs. H. P. Coile, Chairman, Knoxville; Dr. William Litterer, of Nashville, and Dr. Jere L. Crook, of Jackson.

Dr. C. M. Capps, of Knoxville, read a paper on "Diseases of the Frontal Sinus and Their Treatment," which was discussed by Drs. Vaughan, Cullom, Wood, and the discussion closed by the essayist.

Dr. M. M. Cullom, of Nashville, followed with a paper entitled "Purulent Ophthalmia," which was discussed by Drs. Price, McCampbell, Graddy, Zemp, Jones, Capps, Litterer, Vaughan, and the discussion closed by the essayist.

On motion, the Association adjourned until 8 p.m.

Evening Session.

The Association reassembled at 8 P.M., and was called to order by the President.

Mr. L. P. Brown, of Nashville, read a paper on "Pure Food and Pure Drug Inspection."

Discussed by Drs. Frierson, Happel, Burdette, Yarbrough, Price, Howlett, Miller (W. J.), and the discussion closed by Mr. Brown.

The next order was a Symposium on Tuberculosis, and papers were read as follows:

1. "Prophylaxis in Tuberculosis," by Dr. Y. L. Abernathy, of Hill City.
2. "Experimental Tuberculous Peritonitis," by Dr. William Litterer, of Nashville.
3. "Tuberculosis of the Cervical Lymphatic Nodes," by Dr. W. A. Bryan, of Nashville.
4. "How Best to Utilize Our Knowledge of the Communicability of Tuberculosis," by Dr. H. P. Coile, of Knoxville.
5. "The Marriage and Intermarriage of Tuberculous Subjects," by Dr. I. A. McSwain, of Paris. (Read by title.)
6. "Bovine Tuberculosis," by Dr. M. Jacob, of Knoxville.

The symposium was discussed by Drs. Reagor, McNabb, Happel, Crook, Carmichael, Crockett, Sumpster, Kyle, Price, Brandau, Cooke, and the discussion closed by Drs. Abernathy, Bryan, and Coile.

On motion, the Association adjourned until 9 A.M., Thursday.

THIRD DAY—Morning Session.

THURSDAY, April 16, 1908.

The Association met at 9.20 A.M., and was called to order by the President.

Dr. John M. Kennedy, of Knoxville, read a paper entitled "Ethics," which was discussed by Dr. Reamy, of Cincinnati, at the request of the President.

Dr. William D. Sumpster, of Nashville, read a paper entitled "Movable Kidney," which was discussed by Drs. Miller (S. R.), McGannon, Miller (W. J.), Crook, Cooke, McNabb, and in closing by the essayist.

The Secretary read the report of the proceedings of the House of Delegates in regard to the election of officers, etc.

At this juncture the President appointed Drs. Carmichael and Howlett to escort the President-elect, Dr. B. D. Bosworth, of Knoxville, to the platform.

The retiring President, Dr. Cooke, introduced his successor, who said:

Mr. President and Gentlemen of the Tennessee State Medical Association:

You must have a speech of some sort, of some kind, and I must make that speech. Upon my soul, gentlemen, I believe I am too rattled, too befuddled, too overcome for connected or even coherent discourse; and, besides, gentlemen, there are occasions in this life when the human heart is too full for utterance.

I have been a member of this august body for sixteen years, and during that period of time I have been happy and contented in maintaining the position of private in the rear ranks. Just what I have ever done to deserve this greatness that is suddenly thrust upon me I have no power to divine. That it is an honor and distinction most rare there can be no sort of argument or denial. The question is whether or not your humble servant is equal to it. This question the coming year shall answer. Meanwhile, in accepting this great honor, with its immense responsibility and possibilities, in undertaking a chair so brilliantly occupied by my predecessor, and so ably filled in the seventy odd years that are behind us, I realize that you are putting me upon my mettle, and I promise you that you shall have the best that is in me, and all that I hold most dear and sacred in this life. (Applause.) If only the success of our administration be commensurate with a grateful appreciation that all but overwhelms me in this hour, then, indeed, will I render to each of you satisfaction in the fullest measure and offer to you no ground for complaint, no cause for reproach.

Gentlemen, fellows, confreres, in making me the seventy-sixth President of this splendid body you have realized for me the acme of all earthly ambitions, and I thank you again and again, and still again. (Loud applause.)

On motion of Dr. S. R. Miller, a rising vote of thanks was extended to the Secretary for the great improvement made in the official program over those of previous years.

Dr. J. W. Brandau expressed his appreciation and thanks for the high honor conferred on him in electing him Vice-President for Middle Tennessee.

Dr. L. B. Graddy, of Nashville, read a paper on "Treatment of

Detachment of the Retina, With Report of Cases," which was discussed by Drs. Cullom, Price, and the discussion closed by the essayist.

Dr. C. H. Davis, of Knoxville, read a paper on "Adenoids."

This paper was discussed by Drs. Cullom, Sumpter, a member, Reamy, Bryan, and the discussion closed by the author of the paper.

Dr. T. J. Happell, of Trenton, read a paper entitled "Retention of Urine in a Female Infant Nine Weeks Old."

This paper was discussed by Dr. McNabb, and the discussion closed by Dr. Happel.

Dr. W. A. Bryan, of Nashville, read a paper entitled "Unusual Symptoms in Disease of the Vermiform Appendix."

On motion, a volunteer paper by Dr. Charles P. McNabb, of Knoxville, entitled "Acute Dilatation of the Stomach," was read by title and referred to the Committee on Publication.

A paper by Dr. J. A. Gaines, of Nashville, on "Abdominal Operations During Pregnancy," was read by title.

"Professional Courtesy and Unity," by Dr. E. H. Jones, of Murfreesboro, was read by title.

On motion of Dr. Happel, a vote of thanks was extended to the members of the local profession for the convenient arrangements made for halls in which the sessions of the House of Delegates and the General Association were held.

As there was no further business, scientific or otherwise, to come before the meeting, on motion the Association then adjourned to meet in the city of Nashville, 1909.

MINUTES OF THE HOUSE OF DELEGATES.

First Session.

TUESDAY, April 14, 1908.

The House of Delegates met at 2 p.m., and was called to order by President Cooke.

The first order of business was the Report of the Secretary.

The Secretary stated that there was one part of his report which could not be completed until the Treasurer, Dr. Bilbro, and himself had compared the latest returns from the various counties, and he asked permission to include those returns later, which was granted.

He then read his annual report, as follows:

To the Officers and Members of the Tennessee State Medical Association:

MR. PRESIDENT AND GENTLEMEN—I desire to herewith submit my report for the year just closing:

Up to this time I have received reports from fifty counties, from which I find reported 1,045 members who have paid dues for this year, and 259 members who are delinquent. I trust that a goodly number of those unpaid will yet pay up, and thus continue their membership.

Some of the counties have kept up their organization and increased their membership, while others show a falling off. This I think is mainly due to a failure to hold regular meetings, especially in those counties in which the physicians are remote from thickly populated centers. I am satisfied, from the reports of the secretaries of various counties, that there is an imperative demand for some medium of exchange between physicians, in order that they may keep in touch with each other, and that county organizations be in closer touch with the State Association. This, in my opinion, can only be accomplished by a State organ, which can report the meetings of county societies from time to time, and thus stimulate the individuals to greater effort. The Secretary, acting under instructions on page 42 from the minutes of this body, called the attention of each county Secretary to the fact that his society should send its delegate or delegates to this meeting, instructed to vote on this question according to the wishes of its members.

In accordance with instructions of this body (see minutes, page 43) Sullivan County was notified of the action taken by the House of Delegates touching the charges made by Dr. Vanee against said Sullivan County, and the reply is herewith submitted for your action.

The Transactions for 1907 were printed by the Southern Publishing

Association of Nashville. There were printed twelve hundred copies of 442 pages each, at a cost of eight hundred and eighty-four dollars and sixty cents (\$884.60).

In order to overcome the trouble, incident to late reports, your Secretary issued special circular letters in November calling attention to the fact that in order to facilitate this work the county societies were requested to make their fiscal year coincide with the calendar year, and many of them reported, and have since sent supplemental reports, while some have waited until this time, and a few have not reported. In the opinion of the Secretary there should be a change made, whereby the council could be made elective, and divided according to the grand divisions of the State, and each assigned a specific territory over which to preside, and thus keep up the organization of the counties in their immediate districts. As it is, the present council is inactive, and many county societies, which might flourish under immediate supervision, lag behind and finally the members become discouraged and the society fails to accomplish its objects. In addition to this, a properly organized body, whose duty it is to look after county organizations, could bring into the State Association those counties not now organized.

The funds which have come into my hands have been disbursed, as shown in the financial report herewith submitted.

Your Secretary, acting under instructions from this body, attended the meeting of the Council on Medical Education, held in Chicago, April 29, 30, 1907. At this meeting were the representatives of various States and colleges interested in the advancement of medical colleges and State Boards of Examiners, where were discussed the questions involved in the requirements for entrance to medical schools, examinations before State Boards, and reciprocity of States. From these discussions it is evident that there is a growing demand for an elevation of the standards of schools, as well as increased demands of medical boards, and there is urgent need for closer organization of the medical interests of States, looking to the full and complete control of all matters involving the interests of the profession by State organizations. Full reports of this meeting have been issued to the profession by the press of the A. M. A.

Since November your Secretary has been in almost daily correspondence with various county societies, in compiling reports and urging county organizations to renewed action.

Thanking officials, as well as individuals, for their assistance in this work, and trusting my efforts will be appreciated, I am,

Yours very respectfully,

GEORGE H. PRICE, *Secretary.*

On motion of Dr. Jere L. Crook, the report was adopted.

The President said that there were two representatives present

*Before going to press, there were forty-five members additional reported as paid, bringing the total to nearly 1,100 paid to date.

from counties from which the accredited delegates were absent. He referred to Lincoln and Dyer Counties.

Dr. Crook moved that these two men be made the accredited delegates of their respective counties, which motion was duly seconded and carried.

Dr. M. C. McGannon said that one of the representatives from Davidson County had been unavoidably detained, and moved that Dr. M. M. Cullom be given a seat as an accredited delegate from this county. Seconded and carried.

Dr. S. S. Crockett said that Fayette County was not represented, and moved that Dr. Albright be made delegate for this meeting, which was seconded and carried.

The next order was "unfinished business," and the first "unfinished" item was with reference to the resolution offered by Dr. Crockett last year. The resolution is as follows:

Resolved, That, for greater unification of the medical profession and its official boards, and the general influence of the medical profession, a committee of five be appointed by the Chair to revise the laws governing the State Board of Health and the State Board of Medical Examiners, with the idea that if such a plan shall seem feasible, practical, and wise in the estimation of the two boards, and in the estimation of the committee, a bill shall be proposed at the next meeting of the Association uniting the duties of these two boards into one board; that said bill shall be prepared and reported at the next meeting of the Tennessee State Medical Association for its consideration and approval, and that if said bill shall meet with the approval of this Association, it shall be presented to the Legislature for its adoption two years hence.

After the reading of the resolution, Dr. Crockett presented the following report of the Committee on Consolidation of Boards of Health and Medical Examiners:

REPORT OF COMMITTEE ON CONSOLIDATION OF BOARDS OF PUBLIC HEALTH AND MEDICAL EXAMINERS.

GENTLEMEN—Your Committee appointed at your last annual meeting for the purpose of conferring with the State Board of Health and the State Board of Medical Examiners, looking to a possible consolidation of these boards, if such a step should seem wise, beg to report that

Your Committee met soon after our last Annual Convention, and developed a very wide difference of judgment as to the wisdom of the consolidation. The Chairman was instructed, however, to present the matter to the State Board of Medical Examiners, and to the State

Board of Health, and ask them to consider the advisability of the idea of consolidation. The subject was presented to the State Board of Medical Examiners at its annual meeting in Nashville last June, and they were asked by your Chairman to consider the matter and notify him of their action.

Much to the surprise and disappointment of your Committee, and seriously interfering with a more satisfactory report, the State Board of Medical Examiners ignored the request of the Committee.

What their judgment is, or was, upon which your Committee in a measure depended, or whether the subject was considered by them at all, or whether any action was taken, or judgment expressed, is yet unknown to your Committee, as up to the present moment they have received no intimation that would indicate whether the suggestion met their approval or disapproval.

Your Committee is, however, able to report the receipt of a most courteous reception upon the part of the State Board of Health, which body disapproved the idea of consolidating the two boards, but heartily endorsed the idea of having the members of that board selected by the Governor from a list of nominees from this Association.

All of which is respectfully submitted,

April 14, 1908.

S. S. CROCKETT, *Chairman*.

On motion of Dr. Leroy, the report was received with thanks, filed, and the committee discharged.

The next item of "unfinished business" was with reference to a communication from Dr. Frank Allport concerning the care of the eyes of school children. (See report of House of Delegates of last year, page 37.)

The Secretary read this communication, and in the absence of the Chairman of that Committee, Dr. Herron, the Secretary, moved that further consideration of this communication be postponed until tomorrow.

Seconded and carried.

Dr. S. S. Crockett presented, as Chairman, the Report of the Committee with reference to publishing the transactions in journal form.

On motion of Dr. S. R. Miller, further consideration of the subject was made the special order for Wednesday at 2 o'clock.

On motion, the House adjourned until 8 A.M., Wednesday.

Second Session.

WEDNESDAY, April 15, 1908.

The House of Delegates met at 8.25 A.M., and was called to order by the President.

The minutes of the previous session were read and approved.

The president appointed as Auditing Committee to audit the accounts of the Secretary and Treasurer, Drs. L. A. Yarbrough, Chairman; K. S. Howlett, and Leon Sheddan.

Under "unfinished business" the Secretary read from the official minutes of last year pertaining to the Sullivan County Medical Society. (See page 43.)

After some discussion, Dr. T. J. Happel said that this matter should be referred to the Judicial Council, as it involves the question of ethics.

The Secretary accordingly moved that the matter be referred to the Judicial Council, which was seconded and carried.

The Secretary read the following amendment to Article VII, Section 2, of the Constitution, which was presented last year by Dr. C. G. Savage, as follows:

That the next time the Association meets in Nashville (that is, two years hence), it shall meet in West Tennessee, so that hereafter the annual meeting shall be held in Nashville when the Legislature is not in session.

Dr. George R. West moved that the amendment be adopted. Seconded.

After considerable discussion, which was participated in by Drs. Crockett, Happel, Price, Miller (S. R.), and McGannon, the motion was put and declared lost, the vote being 14 for and 18 against, the adoption of the amendment.

On motion, the House of Delegates adjourned until 2 P.M.

Third Session.

The House reconvened at 2 P.M., and was called to order by the President.

Minutes of the previous session were read and approved.

Dr. Happel said that Hickman County had no representative, and moved that Dr. C. V. Stephenson be accorded the privileges of delegate from that county. Seconded and carried.

The special order was the consideration of the recommendations involved in the Report of the Committee on Publication of a Journal.

Dr. Crockett read the report, as follows, which was considered section by section:

GENTLEMEN—Your Committee appointed to report on the subject of the publication of a Journal, beg leave to report the following, to-wit:

Your Committee begs leave to submit for your inspection sample copies of the Journal of twelve different State Medical organizations, some being recent experiments, and others of established reputation.

We beg likewise to place before you for your consideration the fourteen replies of the editors of that number of State Journals to whom the identical letter of enquiry was sent. These replies are marked Exhibit "A".

Your Committee would beg to submit that these sample Journals all reflect credit upon their respective societies, and this Association should be proud to be able to do so well.

A careful study of the replies of your Committee's letter of inquiry leads to some very interesting and instructive conclusions.

(1) The experience of all State Associations publishing their own Journal is a strong advocacy of the plan as a means of increasing the membership, and otherwise enlarging the usefulness and cementing the unity of the profession throughout the State.

(2) From the experience of other State Societies it is reasonable to suppose that the small increase in the expense of the Journal over the Old Transactions plan, would be easily more than covered by the revenue from the advertising pages.

(3) That the publication of the State Journal has been a great factor in increasing the number, the efficiency, and the membership of the County Societies, which your Committee conceives to be one of the highest aims of this organization.

(4) The present financial condition of this organization is such that the Journal could be published monthly, and a bound copy of the transactions at the end of the year sent to each member, and not depend upon the receipt of a single dollar for advertisements.

(5) Last year's receipts by this Association were \$2,116.00, while the proposition for the Monthly Journal and transactions at end of year is less than \$1,800.00.

(6) It will be seen from the above that provision is made for all the expenses of the Association, except the salaries of the Secretary and Treasurer, which our organic law places at \$400.00, and incidental expenses of stationery, stamps, etc.

(7) The experience of other State Associations has demonstrated that the advertising pages of the Journal are a source of considerable revenue the first year, and that such revenue increases from year to year until it covers the largest part of the Journal's expenses.

(8) The advertising rates in the other State Journals call for from \$100.00 to \$250.00 per page per year.

(9) Certainly the thirty pages provided for advertisements in the proposition submitted should yield something, and that amount should increase from year to year.

Your Committee would therefore recommend—

(a) That this House of Delegates provide for the publication of an official Journal, to be known as the JOURNAL OF THE TENNESSEE STATE MEDICAL ASSOCIATION, and to be published monthly, and a volume of Transactions at end of the year.

(b) That the office of Editor for the first year be filled by the Secretary of this Association, and that the compensation for the combined duties be fixed at \$500.00 in lieu of his present salary as Secretary.

(c) As to the management of the Journal, it is recommended that the By-laws be so amended that for the first year the Journal be published by the Committee on Publication.

(d) It is further recommended that proper amendments to the Constitution be introduced at this annual meeting, to be adopted at our 1909 Annual Meeting, providing for the election of three Trustees, one from each grand division of the State; one to serve for one year; one to serve for two years; one to serve for three years. Thereafter at each Annual Meeting one Trustee shall be elected to fill the vacancy, no two Trustees being from the same grand division of the State.

(e) That the Trustees be known as the Board of Trustees of the Journal, and be authorized to elect their own chairman (the Secretary of this Association shall also act as Secretary to the Board of Trustees.)

(f) The Chairman of the Board of Trustees shall be *ex officio* Treasurer of this Association.

(g) The Board of Trustees shall have the entire control of the publication, policy, financial, and editorial management of the Journal, and shall be authorized and empowered to make all contracts necessary.

(h) That the Chairman of the Board of Trustees, who shall be *ex officio* Treasurer of the Association, be the custodian of all the funds derived from the Journal.

(i) That the Board of Trustees shall hold semiannual meetings, and such other meetings as the business of the Journal may require, subject to the call of the Chairman.

(j) All expenditures of the funds of the Association shall be made by the Board of Trustees, and a full financial report shall be submitted by them to the Annual Meeting of this Association.

(k) That the members of the Board of Trustees shall serve without compensation; however, their actual expenses in attending the meetings of the Board shall be paid out of the funds of the Association.

S. S. CROCKETT,
S. W. WOODYARD,
T. J. HAPPEL.

Dr. Leroy moved the adoption of Section (a). Seconded.

After discussion by Drs. Richards, Leroy, Sheddan, and Yarbrough, the House voted on this Section by roll-call, and the vote stood 30 in favor of the adoption of this Section to publish

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a Journal, and 6 against it. The President, therefore, declared the Section adopted.

Section (b) was read and adopted.

The other sections of the report were read, and likewise adopted, after which Dr. Leroy moved that the report be adopted as a whole, which was seconded by several and carried.

Dr. Crockett then offered the following amendments to the Constitution and By-laws (the former to lie over one year, the latter to be voted on at a subsequent session) :

PROPOSED AMENDMENTS TO THE CONSTITUTION.

ARTICLE VIII.

Section 1. The words "three Trustees of the Journal" to follow the word "Treasurer" in second line.

Section 2. The words "and Trustees of the Journal" to follow the word "Councillors" in first line.

Section 3. The word "all" to precede the word "the" in the first line, and the words "except the Treasurer" to be inserted after the word "Association" in the first line.

At the close of the present section to be added the following:

"Three Trustees of the Journal shall be elected at the annual session of 1909. No two Trustees shall be from the same grand division of the State. One Trustee shall be elected to serve one year; one to serve for two years, and one to serve for three years. At each annual session thereafter, one Trustee shall be elected to serve for three years." (To lie over one year.)

PROPOSED AMENDMENTS TO THE BY-LAWS.

CHAPTER VI.

Section 3. Strike out the entire parenthesis; substitute the word "Secretary" for the word "President" in ninth line, and strike out "countersigned by the Secretary" immediately following.

Section 4. Strike out "and the Committee on Publication," in the fourth line from bottom of page.

Strike out the last sentence in present section, and add the following:

"The Secretary shall be the editor of the Journal of the Association, and shall discharge such duties as the Committee on Publication or the Trustees may direct. He shall receive for his services the sum of five hundred dollars (\$500.00) annually out of the funds of the Association."

CHAPTER VIII.

Section 4. Strike out the words "and Chairman" in second line. Add "and Journal" after the word "Transactions" in sixth line.

Add the words "and Journal" after the word "Transactions" in eighth line.

CHAPTER IX.

Section 1. Add the words "and subscription to the Journal" after the word "dues" in the second line.

Dr. Leroy moved that a rising vote of thanks be extended to the members of the Committee for the indefatigable work they had done, and the splendid manner in which they had handled it.

Seconded and carried.

The Secretary stated that the President, Dr. Cooke, had attended a meeting of the National Legislative Council of the American Medical Association, December 13, 14, and 15, 1907, at Chicago, for which he had presented a bill of expenses amounting to \$40.00, and moved that the House of Delegates instruct the Treasurer to pay Dr. Cooke this sum to reimburse him for the expenses incurred in his attendance on that meeting. Seconded and carried.

On motion, the House of Delegates adjourned until 5 P.M.

Fourth Session.

The House of Delegates reconvened at 5.30 P.M., and was called to order by the President.

Dr. Happel read a communication from the Bristol and Sullivan County Medical Society, as follows:

GEO. H. PRICE, Secretary of the Tennessee State Medical Association:

DEAR SIR—I, as the authorized representative of the Bristol and Sullivan County Medical Society, very respectfully notify the Tennessee State Medical Association that our Society accepts and has conformed to the interpretation of Article III, Section 1, of the Principles of Ethics of the American Medical Association, with reference to consultations, as made at the Memphis meeting, 1906, by the Judicial Council.

April 15, 1908.

(Signed) M. M. PEARSON.

It was moved to reconsider the action taken at a previous session of the House of Delegates in regard to this matter. Seconded and carried.

Dr. Happel thereupon moved that Dr. M. M. Pearson be permitted to register as a delegate from the Bristol and Sullivan County Medical Society, inasmuch as that Society had now complied with the requirements of the House of Delegates and the Judicial Council. Seconded.

Dr. Price moved to amend that the delegate from the Bristol

and Sullivan County Medical Society instruct the said Society that to carry out this idea, it must in the shortest time possible make its report if it is to be included in the report of the proceedings of this year, sending a list of its members, with the necessary dues to the Treasurer of the State Association.

The amendment was seconded, and accepted, and the original motion as amended was carried.

Dr. Crockett read the report of the Committee on Public Policy and Legislation, as follows:

GENTLEMEN—Your Committee on Legislation and Public Policy beg leave to submit as their annual report, to-wit :

There has been no session of our State Legislature since the adjournment of our last annual session, hence this report has to deal with acts on the statutes at the time of our appointment and recommendations for the future.

You will recall that the Act known as the Pure Food and Drug Law had just been passed at the time of our last meeting. This law, which was the child of this Association, was drawn by its own Committee and put upon the Statute books largely through the influence and coöperation of the various County Medical Societies, did not become operative until January 1, 1908. This law, you will recall, provided for the appointment by the Governor of a "Pure Food and Drug Inspector," and carried what seems to be an adequate appropriation for the accomplishment of the objects and purposes intended.

You will recall further that the Pure Food and Drug Inspector was properly placed under the jurisdiction of the State Board of Health. It is a pleasure to be able to report that at the annual meeting of the State Board of Health, January 7th, your Committee was invited to appear before the Board of Health, with the idea of endorsing some one of the various applicants for the position of Pure Food and Drug Inspector best suited for the work. Abundance of good material was at hand from which to select. The matter was discussed at length, and your Committee retired.

The following morning the Committee was summoned to the office of the Governor, who made diligent enquiries as to the education, experience, equipment, capacity, and personality of the choice of the Committee. With much gratification your Committee learned that the judgment of the Board of Health coincided with that of the Committee, and accordingly three days later the commission as Pure Food and Drug Inspector was issued to Mr. Lucius Polk Brown, of Williamson County, a man well known to this Association.

Your Committee feels gratified that it can thus report a successful pursuit of the subject down to the appointment of the official to enforce the law. We can do no more except ask for the Inspector and the machinery of his office your cordial coöperation and support.

We feel that we have the right to expect of Mr. Brown all the good that can be brought out of the law. He is a man of education, with wide experience as an analytical chemist; a man of good judgment, with no environs that would tend to cripple his efforts, and never having been in politics is without enemies to punish or friends to reward.

In presenting to you the final chapter in connection with this legislation, it is nothing short of simple justice to again express on behalf of the Committee the gratitude which the profession should feel for the hearty coöperation of Gov. M. R. Patterson in every step of this legislation. He favorably recommended the bill in different messages, made it one of the features of his administration, urged his personal friends to vote for the bill, and finally selected a man of high character to enforce it. All this was rendered possible by the fact that the Governor was in full sympathy with the humanitarian spirit that inspired this Association in first appointing your Committee on that subject, and turned a deaf ear to all the interested detractors of our profession who pretended to see nothing but interested motives behind the whole movement.

Perhaps, in this connection, it would be wise to report that since the last session of this Association there has been held in the city of Chicago the annual conference of the Committee on Medical Legislation and the National Legislative Council of the American Medical Association, the latter body being composed of one representative from each State Medical Association. This conference is held annually for the purpose of studying, comparing, improving, and perfecting, if possible, the various legislative acts of the several States and our National Congress, as are related to the welfare of the profession and the public, in the widest and broadest sense.

The value of such a conference to the profession, and to the public, is well shown in the little Bulletin of Transactions issued by the American Medical Association in September last, and which can be had by any member of this Association for the asking.

The President of this Association appointed your Chairman of this Committee as the representative from Tennessee at that conference. At the last moment your Chairman was detained, and at his earnest solicitation your President was induced to go and represent the State, which he did with credit. Your Committee would recommend that his expenses be paid, and that provision be made for Tennessee to be properly represented at each Annual Conference hereafter.

S. S. CROCKETT, *Chairman,*
GEO. H. PRICE,
S. R. MILLER,
A. B. COOKE,
JERE L. CROOK.

Dr. Happel moved that the report be adopted as read, and that the thanks of the House of Delegates be extended to the committee for its work; and, further, that the thanks of the House

of Delegates be tendered to Governor Patterson for his compliance with the request of the committee in the appointment of a Pure Food Inspector, and that the Secretary be instructed to notify the Governor of this action. Seconded and carried.

Dr. A. I. Isham was accorded a seat as delegate from Sevier County.

PROPOSED AMENDMENTS TO THE CONSTITUTION.

Dr. Crockett presented the following amendment to the Constitution:

Amend Article VIII, Section 1, so as to read: "The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and ten Councillors, one of whom shall be from each Congressional District of the State."

Amend Section 2 so as to read: "All the officers shall be elected annually except the Councillors, who shall be elected for two years. The election of the Councillors shall be so arranged that one-half their number shall be elected at each annual meeting, as provided in Chapter V of the By-laws."

Amend Section 3 so as to read: "The President and Secretary shall be members of the Council *ex officio*."

Change Section 3 to Section 4, and amend by inserting the words "except that of Councillor" after the word "section" in fourth line.

REPORT OF TREASURER.

The Treasurer read his report, as follows:

To the Officers and Members of the Tennessee State Medical Association:

Cash in hands of Treasurer at last meeting.....	\$ 2,770 50
Hickman County	12 00
Roane County	30 00
Smith County	26 00
Anderson County	32 00
Dickson County	16 00
Hardeman County	24 00
White County	36 00
Sumner County	16 00
Lake County	20 00
Robertson County	52 00
Lake County	2 00
Polk County	12 00
Loudon County	20 00
Crockett County	30 00
Green County	46 00
Putman County	20 00
Bedford County	40 00
Montgomery County	24 00

Warren County	\$ 22 00
Weakley County	22 00
Hickman County	12 00
Obion County	32 00
Lincoln County	30 00
Robertson County	2 00
Sevier County	16 00
Crockett County	2 00
Hamblen County	28 00
Sumner County	2 00
Anderson County	2 00
Madison County	60 00
Chester County	8 00
Humphreys County	20 00
Haywood County	28 00
Crockett County	2 00
Polk County	2 00
Hickman County	6 00
Tipton County	32 00
Henry County	16 00
Gibson County	58 00
Henderson County	10 00
Maury County	44 00
Knox County	166 00
Washington County	18 00
Henderson County	4 00
Giles County	50 00
Bedford County	4 00
Haywood County	4 00
Crockett County	2 00
Putman County	6 00
Campbell County	28 00
Marion County	4 00
Fayette County	8 00
Perry County	2 00
Robertson County	4 00
Williamson County	34 00
Marshall County	30 00
Crockett County	2 00
Lauderdale County	26 00
Montgomery County	2 00
Dixon County	4 00
Monroe County	24 00
Jefferson County	32 00
Hamilton County	124 00
Knox County	4 00
Washington County	4 00
DeKalb County	10 00
Hamblin County	4 00
Henry County	2 00
Shelby County	162 00
Dyer County	42 00
Davidson County	276 00
Bradley County	32 00
Rutherford County	30 00
Hamilton County	4 00
Total received	\$4,832 50

AMOUNT DISBURSED SINCE LAST MEETING.

April 26, 1907, to Dr. G. H. Price.....	\$ 75 00
June 1, 1907, to Dr. S. W. Woodyard.....	50 00
May 7, 1907, to W. M. Whitford.....	137 80
October 7, 1907, to Transactions and supplies.....	891 25
September 18, 1907, to G. H. Price.....	200 00
March 20, 1908, to G. H. Price.....	300 00
Treasurer salary	100 00
Stamp and stationery account.....	10 00
Premium for Treasurer's bond of \$2,500.00.....	25 00
Balance paid Secretary for programs, etc.....	60 15
 Total disbursed	 \$1,849 20
 Total received	 \$4,832 50
Total disbursed	1,849 20
 Balance in hands of Treasurer.....	 \$2,983 30

We, the Auditing Committee, have examined the accounts of the Treasurer and find the same correct.

K. S. HOWLETT,
L. SHEDDAN,
L. A. YARBROUGH.

Since the meeting the Treasurer has collected amounts herewith given:

Carroll County	\$ 20 00
Tipton County	6 00
Haywood County	2 00
Lincoln County	2 00
Shelby County	20 00
Hamilton County	8 00
 Total	 \$ 58 00
Balance in hands of Treasurer at time of meeting.	2,983 30
 Balance in hands of Treasurer May 20, 1908.....	 \$3,041 30

At the conclusion of the report of the Treasurer, Dr. Yarbrough, Chairman of the Auditing Committee, said that the committee had examined the books and accounts of the Treasurer and had found them correct.

Dr. Crook moved that the report be adopted with the approval of the Auditing Committee, as presented, and spread on the minutes. Seconded and carried.

The Secretary read his financial report, as follows:

FINANCIAL REPORT OF SECRETARY.

RECEIVED.

May 1, 1907—From W. C. Bilbro, Treasurer, check for expenses to Chicago, as delegate to meeting of Council on Medical Education, and general office expenses.....	\$ 75 00
September 19, 1907—From W. C. Bilbro, Treasurer, for expressing and mailing Transactions.....	200 00
October 9, 1907—From W. C. Bilbro, Treasurer, check for Southern Publishing Association	891 25
March 21, 1908—From W. C. Bilbro, Treasurer, salary of Secretary	300 00
April 15, 1908—From W. C. Bilbro, Treasurer, for balance on printing, etc.	60 15
 Total received	\$1,526 40

DISBURSED.

May 1, 1907—To expenses to Chicago and return.....	\$ 42 00
May 16, 1907—To stamps, \$2.00; paste for use on Transactions, \$0.25	2 25
July 17, 1907—To stamps	1 00
August 20, 1907—To stamps	1 00
September 16-30, 1907—To Southern Express Company for Transactions, see Express Receipts in book. Voucher No. 1	109 46
September 16-30, 1907, and subsequently—To mailing and distributing Transactions to County Societies and Nashville. Voucher No. 2.....	80 88
October 5, 1907—To stamps	1 00
October 9, 1907—To Southern Publishing Association for 1,200 copies of Transactions	884 60
To printing supplies for office. Voucher No. 2½.....	6 65
November 19, 1907—To Gray Printing Company for circular letters to County Secretaries. Voucher No. 3.....	1 25
November 19, 1907—To postage for mailing circular letters....	1 50
December 1, 1907—To telephoning Linden, Perry Co. (business)	50
December 10, 1907—To mailing letters and membership blanks for County Reports	1 50
January 1, 1908—To Gray Printing Company for letters mailed December 10, 1907. Voucher No. 4.....	2 00
January 14, 1908—To mailing 1,200 President's letters to members	12 00
January 27, 1908—To telephoning Centerville, Hickman County, (business)	45
February 5, 1908—To mailing letters County Secretaries.....	1 50
February 16, 1908—To mailing 1,200 letters, calls for papers....	12 00
March 3, 1908—To Southern Publishing Association for bills of January 7-13, and February 14. Voucher No. 5.....	13 00
March 10, 1908—To Gray Printing Company for circular letters to County Secretaries, two forms. Voucher No. 6.....	3 00
March 26, 1908—To Geo. H. Price, Secretary, salary. Voucher No. 6½	300 00
April 1, 1908—To mailing circular letters and preliminary programs	4 62
April 2, 1908—To Gray Printing Company, letter mailed with preliminary program. Voucher No. 7.....	1 50
April 2, 1908—To telegram to Wm. Whitford, Chicago.....	39

April 6, 1908—To Southern Publishing Association, for 1,200 preliminary programs, mailed April 1. Voucher No. 8.	\$ 7 00
April 6, 1908—To telephoning W. C. Bilbro, Treasurer, Murfreesboro (Association business)	25
April 8, 1908—To Foster, Webb & Parkes, 300 badges. Voucher No. 9	9 25
April 11, 1908—To the McQuiddy Publishing Company for program of meeting. Voucher No. 10.....	25 00
April 11, 1908—To express on programs and book to Knoxville for meeting. Voucher No. 11.....	85
Total disbursed	\$1,526 40

Examined and verified, this April 15, 1908.

K. S. HOWLETT,
L. SHEDDAN,
L. A. YARBROUGH,
Auditing Committee.

The Auditing Committee also reported as having examined the accounts of the Secretary, and had found them correct.

It was moved and seconded that the report be accepted and spread on the minutes. Carried.

Dr. Crockett moved that incoming President appoint a representative to the National Legislative Council, wherever it may meet, and that his expenses be paid out of the funds of the Association. Seconded by Dr. Happel and carried.

Dr. Reagor presented the following, which, on motion, duly seconded and carried, was referred to the Committee on Public Policy and Legislation :

In view of the fact that our Committee appointed at the last meeting of the Association to recommend some plan of action for the consolidation of the State Board of Health and the State Board of Medical Examiners failed to agree upon any recommendations, and as there is a strong sentiment among the members of this Association and profession of the State for some action along this line, providing that it should be made the duty of the Governor to appoint such men on these Boards as may be nominated on the floor of this House or General Session of the State Association from the various schools of practice from each grand division of the State, and as it is to the interest of the medical profession of the State to have the county and city health officers of the counties of the State elected by the respective County Medical Societies, and in case any county has no medical society the health officer of said county to be elected as he is now.

I move that the President of the Tennessee State Medical Association appoint a committee of three or five at this meeting to confer with the Committee on Public Policy and Legislation, and have the above drafted into suitable form for the proper amendments to the laws regulating the above-named Boards, to conform to the wishes of this Association, and that the said committee, together with the members of this Association and the County Societies, be asked to use their influence with the next Legislature to have amendments made to the laws regulating the State Board of Health and the Board of Medical Examiners.

On motion, the House of Delegates then adjourned until 8 A.M., Thursday.

Fifth Session.

THURSDAY, April 16, 1908.

The House of Delegates met at 8.30 A.M., and was called to order by the President.

Minutes of the previous session were read and approved.

The first order was the report of the Nominating Committee.

Dr. M. C. McGannon, Chairman of the Nominating Committee, presented the following report:

For President—Dr. B. D. Bosworth, of Knoxville; Dr. E. R. Zemp, of Knoxville; and Dr. J. L. Leiper, of Lenoir City.

The President appointed as teller Dr. Crockett.

The result of the ballot was as follows: There were 22 votes cast, of which Dr. Bosworth received 19, and Dr. Leiper 3.

Dr. Bosworth was declared duly elected President of the Association for the ensuing year.

The following officers were duly elected:

Vice-President for East Tennessee—Dr. C. T. Carroll, of Cleveland.

Vice-President for West Tennessee—Dr. M. A. Blanton, of Union City.

Vice-President for Middle Tennessee—Dr. J. W. Brandau, of Clarksville.

Secretary—Dr. George H. Price, of Nashville, re-elected.

Treasurer—Dr. W. C. Bilbro, of Murfreesboro, re-elected.

Delegates to American Medical Association for 1908—Dr. S. W. Woodyard, of Greenville; Alternate—Dr. George R. West, of Chattanooga; for 1908-09, Dr. S. S. Crockett, of Nashville; Alternate—Dr. K. S. Howlett, of Franklin; Delegate in case membership reaches 1,200, Dr. Jere L. Crook, of Jackson; Alternate, Dr. Louis Leroy, of Memphis.

Place of meeting, Nashville.

On motion, Dr. J. A. Larue was accorded the privileges of the floor as delegate from Giles County for this meeting.

Dr. Crockett presented the amendments to the By-laws which he offered at a previous session, and asked that action be taken on them now.

These By-laws were then read and considered *seriatim*, and were adopted by a majority vote of the members (delegates) registered.

On motion of Dr. Crockett, the By-laws were then adopted as a whole.

Dr. Crockett asked unanimous consent, which was granted, to permit the following amendments to be printed in the Transactions this year, to be acted on next year:

AMENDMENTS.

Add a new chapter, to be designated as Chapter IX, as follows:

Section 1. The Board of Trustees of the Journal, composed of three members of this Association, elected as heretofore, shall select its own Chairman, who shall be *ex officio* Treasurer of this Association. The Trustees shall have entire control of the publication, the policy, and the editorial and financial management of the Journal of the Association. It shall be authorized and empowered to make all contracts necessary for the conduct of the Journal.

The Chairman of this Board, who is also *ex officio* Treasurer of this Association, shall be the custodian of all the funds derived from the Journal.

The Board of Trustees shall hold semi-annual meetings, and such other meetings as the business of the Journal may require, subject to the call of the Chairman.

The Board of Trustees shall make all expenditures of the funds of the Association, and render at the annual meeting a full and detailed account of all receipts and disbursements.

Section 2. The Board of Trustees shall serve without compensation; however, their actual expenses in attending the meetings of the Board shall be paid out of the funds of the Association.

The following Chapters of the By-laws to be renumbered: The present Chapter IX becoming Chapter X, etc.

The Treasurer stated that Putnam County had lost its charter, and a delegate from that county requested a new one.

The President said that the By-laws provided that charters shall be replaced by the secretary.

Dr. Happel suggested that Dr. Crockett incorporate in his suggestions or amendments a clause to the effect that delegates be paid expenses to and from the meeting of the American Medical Association, say fifty dollars (\$50.00), or as much thereof as may be needed.

Dr. McGannon moved that the expenses of delegates to and from the meeting of the American Medical Association be paid out of the funds of the Association. Seconded.

Dr. Happel moved to amend that this expense shall not exceed fifty dollars (\$50.00). Seconded.

After some discussion by Drs. Crockett, McGannon, Happel, the President, and the Secretary, the amendment was put and carried.

There being no further business to come before the meeting, the Chair expressed his profound thanks to the delegates for their co-operation and for the good and faithful work they had done at this meeting of the House of Delegates.

On motion, the House of Delegates then adjourned *sine die*.

Editorial and Business.

All communications relating to the Editorial or Business departments of the JOURNAL, should be sent to the office of the Editor, GEO. H. PRICE, No. 146 Eighth Avenue, North, Nashville, Tennessee.

SALUTATORY.

AFTER a thorough consideration of all the points for and against journalizing the transactions of this Association, the House of Delegates, at the Knoxville meeting, April 14-16, decided that the best interests of the profession of the State at large could be met by a journal. This question had been under consideration for several years, and heretofore it was not thought wise to depart from the long-established custom of issuing its transactions in book form; but at this meeting, after having heard what had been done in other States, it was, by a large majority of the delegates representing the direct wishes of their County Societies, decided to begin the issuing of a journal to be known as the JOURNAL OF THE TENNESSEE STATE MEDICAL ASSOCIATION.

We believe that this is a long step forward in the interests of the individual member, as well as the body of the profession, and hence we desire to call to our aid in this project every physician in the State, believing, as we do, that this will certainly insure the success of the JOURNAL from its very beginning.

The objects of the JOURNAL will be to give all of its subscribers each month the benefit of the views and opinions of the members of this Association, upon some important and pertinent questions involved in the daily contact of professional life; thus putting the profession in close and vital touch.

It will also be the aim of the JOURNAL to help in spreading the influence of the organized profession in those counties of the State, when organization seems to have found but little favor.

In this connection let us say that we especially desire and urgently request every member of the profession, who may be eligible to membership in any County Society in the State, to at once connect himself with his County Society, and thus become a subscriber to the JOURNAL.

In those counties in which there is no society, let us urge the profession to take steps to organize, and thus lend the influence it can exert in those channels calculated to benefit and build up the profession at large.

This is one of the most important functions of the JOURNAL, and was one of the impelling influences which brought about its establishment as an organ of the State Association, which represents the best interest of the profession.

The body of the JOURNAL, for the present, will be made up of the papers and discussions presented at the annual meetings of this Association, with information and reports from the various sections of the State as derived from reports of component County Societies, together with the reports of the business transacted by the House of Delegates, as well as the general sessions of the Association.

When it shall be deemed wise, expedient, and to the best interests of the subscribers, as well as the policy of the JOURNAL, we will publish well-selected articles from our exchanges, hoping thus to place in the hands of our subscribers increased opportunities to keep in touch with our professional brethren in other States than ours.

It is the desire and the intention of your Publishing Committee to allow nothing of a questionable character to appear either in the reading matter or advertising pages of your Journal, and to this end we will select all material with the view and hope of meeting the wishes of those who, by their confidence in us, have placed us in charge of this most important undertaking.

We earnestly hope, greatly desire, and urgently request that every member of the profession in Tennessee shall come to our help and assist us in establishing a journal of which the Association will be proud, and in which every member will feel a personal interest.

TO THE COUNTY SECRETARIES.

To EACH of you the JOURNAL bears a cordial greeting, and we would remind you of the fact that the position which you now occupy is of peculiar significance. Upon you will devolve the responsibility of active agent in the interest of this, the official organ of the State Association, in its relation to the individual

members of our organization. Remember that as each member of your County Society pays his dues to the State Association, this at once becomes his subscription to the JOURNAL. This should act at once as an inducement for men to join your local society, as well as an incentive for you to solicit all who are eligible to join.

In view of these facts, let us urge you to undertake now the bringing in of every physician in your county who may be able to meet the requirements of your local society. We should have every reputable physician in the State as a subscriber, as we now have something to offer him which is both tangible and practical.

Thus armed you are now in a position to enter upon your work with renewed zeal, with every confidence of success.

You have done well in the past, and now the future holds out to you the promise of even greater things than you have thought for. Let us hear from you.

THE KNOXVILLE MEETING.

OUR meeting at Knoxville was one of the most successful in the history of the Association.

The local Committee of Arrangements had perfected its plans so as to provide all possible facilities for the pleasant, profitable, and expeditious carrying out of the work of the general sessions, as well as the House of Delegates.

The place of meeting was quiet, comfortable, and ample in every respect, and most convenient in its arrangements. The local profession most attentive and solicitous, and though the city was crowded at the time, the visiting physicians were well provided for.

The attendance was large, and those present were unusually interested in the work of the body, and gave every evidence of being not only pleased, but much profited.

The program was attractive, and the papers presented elicited much discussion, which is always an indication of merit.

The representation of East Tennessee was more marked than usual, and gave evidence of renewed interest, in that portion of the State, in the affairs of the organization, while the Middle and Western portions of the State were represented by a large number of the "old guard" who are always present whenever the call of the Association is sounded.

THE SOUTHERN MEDICAL ASSOCIATION.

THIS Association, which is the Gulf Branch of the American Medical Association, is composed of members in good standing of the following State Associations: Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee.

The objects of this Association are to give to every member of the component State Associations an opportunity to meet once a year with his professional friends, for the purpose of discussing those questions of vital importance pertaining to his profession, both local and general, and it will afford peculiar advantages to those who are unable from any cause to attend the American Medical Association.

The Tennessee State Medical Association has approved this movement, and it is hoped that all who can will join it, and thus help in building up a most successful Southern Branch of the American Medical Association.

The first meeting was held in Birmingham, Alabama, September 24-26, 1907, and was a great success, having present representatives from all of the component bodies. The next meeting will be held in Atlanta, Ga., November 10-12, 1908. If you desire to become a member, and it is hoped you will, send your application to the Secretary, Dr. Oscar Dowling, Box 594, Shreveport, La. The dues are \$2.00 per year, payable annually in advance.

SPECIAL NOTICE TO MEMBERS.

WE are mailing the JOURNAL to all whose names appear upon our county lists. Some of these we are sorry to note are in arrears to the State Association at this time. As dues to the State Association constitute the subscription to the JOURNAL, this means that you can only be continued on our mailing list and receive the JOURNAL monthly by paying, through your County Secretary, the amount now due by you.

We trust you will give this attention at once, so that you can be continued as a subscriber.

Remember you pay through your County Secretary, who will remit to the Treasurer and send me your name. There are several counties from whom we have no reports as yet.

Now is the time for these members to get together and rejuvenate their organization, and through this, the official organ, keep in touch with their professional friends.

If you act promptly you will have the JOURNAL from the first issue, but if this opportunity is not accepted, you may have a broken file, for we cannot promise to supply back numbers.

Journal

of the Tennessee State Medical Association.

PUBLICATION COMMITTEE:

A. B. COOKE.

GEO. H. PRICE, CHAIRMAN.

M. M. CULLOM

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OPHTHALMIA NEONATORUM AS A SOCIO-LOGIC PROBLEM.

HILLIARD WOOD, M.D., NASHVILLE.

FOR ages past it has been recognized by physicians generally that one of the most common causes, if not indeed the most common cause, of human blindness is ophthalmia neonatorum. Its ravages were well nigh universal and unchecked until 1883, when Carl Crede, of the Leipsic Lying-in Hospital, announced that a drop of a two per cent solution of nitrate of silver allowed to flow over the cornea of each eye of a newborn child would prevent this disease. Crede's statistics show that previous to the introduction of this prophylaxis, ophthalmia neonatorum occurred in 10.8 per cent of all children delivered by him in the above-named institution; and that after the use of the silver solution the number sank to 0.1 to 0.2 per cent. The prophylaxis was, therefore, almost uniformly successful. The correctness of Crede's observation has been confirmed by physicians everywhere until now it is a matter of established medical history and is not denied.

The importance of this discovery, by Crede, may be better understood if we bear in mind a statement by Fuchs that, previous to its announcement, ophthalmia neonatorum caused a tenth of all cases of blindness, while now ophthalmia neonatorum need not occur, and its continued presence is a reproach to our profession and to our civilization. Crede's discovery was one of the epoch-making periods in medical history, the magnitude of which

we are slow to recognize, and of the value of which many are slow to take advantage to their own humiliation and the utter undoing of their patients.

The profession and the public are slow to recognize the prevalence and gravity of this disease. Fuchs states that before the introduction of Crede's prophylaxis it occurred in from 1 to 20 per cent of all babies. On this point Dr. Lewis, of Buffalo, says: "From tables published by Kostling, of Halle, in 17,767 births with no treatment 9.2 developed the ophthalmia of infancy, while in 24,723 births, in which the prophylactic treatment of the 2 per cent nitrate of silver was employed, the infection developed in 0.65 per cent. In 4,000 births at the Sloan Maternity Hospital, in New York, during a period of six years, in which Crede's method was employed not one case of ophthalmia developed. Later, in 1886, Crede reported 1,211 births, with 3 but slightly affected, or 0.25 per cent."

The statistics from the Nashville City Hospital for the past two years were collected for me by the House Surgeon, Dr. R. W. Grizzard. In 1906 the number of births was 39. Crede's method was used in all and 2 developed the infection, or 5.1 per cent. In 1907 the number of births was 65, Crede's method was employed in all and none developed the infection. This gives for the two years 104 births, with Crede's method used in all, and the development of the infection in 2 cases, or 1.9 per cent. This is a remarkably good showing when we remember the character of the cases delivered in the charity institutions of our cities.

Notwithstanding the well-known virtue of Crede's preventive treatment, records gathered from a number of the States of the Union by Dr. Lewis show that about 30 per cent of the pupils in the institutions for the blind are victims of ophthalmia neonatorum. The statistics are as follows:

New York State School for the Blind	30.7 per cent.
The Pennsylvania Institute for the Blind.....	33.3 per cent.
Institute for the Blind, Austin, Texas (about)...	10.0 per cent.
Perkins Institute and Massachusetts School for the Blind	30.0 per cent.
Colorado School for the Blind, Colorado Springs..	42.8 per cent.

In the Tennessee School for the Blind, Nashville, the number and percentage of pupils who have lost their vision as the result

of ophthalmia neonatorum have been carefully compiled for a period of eight years. They are as follows:

	Number of Pupils.	Number with Ophthalmia Neonatorum.	Percentage.
Session 1898-9	167	20	11.9
Session 1900-1	222	34	15.3
Session 1902-3	61	8	13.1
Session 1903-4	52	10	19.2
Session 1904-5	52	5	9.6
Session 1905-6	58	14	24.1
Session 1906-7	32	3	9.3
Session 1907-8	55	5	9.1

The average for the above eight years, 13.9 per cent.

Average number of pupils in the school per session, about 200.

Average number of pupils from ophthalmia neonatorum each session, about 28.

Annual appropriation for each pupil per session, \$175.00.

Annual expenditure for pupils from ophthalmia neonatorum, \$4,900.

In the above table for Tennessee the number of children for the sessions 1898-9 and 1900-1 include all the children in school, both old and new, while for the following sessions the new pupils only are tabulated.

What, then, have we here in Tennessee? We have each session about 28 children in our School for the Blind who have lost their vision from ophthalmia neonatorum—in other words, from the ignorance or negligence of some doctor or midwife. Nor do these 28 cases include all the children in Tennessee blind from this disease. The number who attend the school are but a small per cent of the larger but unknown number who do not attend. The above statistics, carefully taken for eight years, show that in our Tennessee School for the Blind about one child in every seven is blind from ophthalmia neonatorum, and this proportion obviously holds good for the blind children of the entire State. So that it is substantially correct to say that here in Tennessee one blind child in every seven has been rendered blind by a disease which, in the first place, was perfectly preventable, and, therefore, should never have occurred, and which, in the second place, was perfectly curable after it did occur.

The subject of ophthalmia neonatorum is one, therefore, which comes home to Tennessee and to us. Whether we look at it from a financial, sociologic or humanitarian view point we see nothing

but a tragedy. The Legislature of Tennessee has for years appropriated annually \$175 for the expense of each student per session in our School for the Blind. This is a meager sum and ridiculously inadequate either to fully supply the needs of the children for sustenance and education or to discharge our obligations to them. Yet even at this low rate of \$175 per student per session, the 28 children who, because of ophthalmia neonatorum are in this institution, cost the State \$4,900 annually. And this goes on from year to year, and nothing is said and nothing is done. But this appropriation of \$4,900 does not cover the annual cost of ophthalmia neonatorum to Tennessee. Think of the larger number of children blind from this disease who never attend our excellent institution for the blind. Many of these children are poor, many live in rural and remote parts of the State and never hear of our School for the Blind and of its advantages and blessings, and hence grow up in utter ignorance of it and of that education and training which it alone can give. These children who stay at home must be cared for by parents, friends, or public charities, and hence become not only as much a tax upon the Commonwealth as those who attend school, but even more so, for those who attend the school learn useful trades and so become partially or fully self-supporting, while those who remain at home, without education, remain a public burden during their entire life. It is evident that there are in Tennessee hundreds of people, of all ages, blind from ophthalmia neonatorum, who, by public or private charity and by the lessened productive power of the individual, cost the State many thousands of dollars annually.

But to consider any disease from a standpoint of dollars and cents is to take the lowest view of it. Let us look at the victims of ophthalmia neonatorum from a humanitarian view point. What is the value of vision? It is above price. It is infinitely the most valuable of all the senses. The pathos of blindness is too evident to need description. In my thoughts there has always been a wide distinction between blindness developing, on the one hand, in an old patient, and on the other, in a newborn babe. In the one case vision has been long enjoyed and not many years of life remain; while in the other, the child, all ignorant of life, through no fault of its own, begins its dreary existence in

unending night. When we reflect that ophthalmia neonatorum causes more blindness than any other condition that affects human vision we must become interested, and when we further reflect that this scourge is both preventable in the first place, and and curable in the second, our interest changes to indignation, and our indignation to shame.

What, then, is to be done, and whose is the fault? Evidently it is not the fault of the child who is the victim of the disease. Although we are assured that the iniquity of the father is visited upon the child, this does not in any sense lessen our duties and responsibilities. I have one serious charge to bring against the medical profession. That charge is that they have failed to adequately understand and appreciate the gravity of this disease. Time and again I have been called to treat this disease in children who were delivered by physicians who stand high in our profession. If the better class of physicians allow this disease to develop in their practice, what are we to expect of those less informed, and especially what are we to expect from the large number of ignorant midwives who deliver such a large per cent—probably 25 per cent of the children born all over this country? When we consider the situation we are surprised, not that one blind child in every seven in Tennessee is blind from this disease, but rather that the percentage is not higher, as indeed it is in many of the older States where the proportion of urban population is greater than it is with us.

But the conscience of the profession and of the public is being aroused. The President of the American Medical Association, at its meeting in Boston, in 1906, appointed a committee, of which Dr. F. Park Lewis, of Buffalo, is chairman. It was made the duty of this committee to gather statistics and to call the attention of both the profession and the public to this disease, so that by combined effort the blindness from ophthalmia neonatorum may be reduced, if not finally eradicated.

How then can we effect this "consummation devoutly to be wished." It cannot be done by undue modesty, or by shutting our eyes to the truth. The time has come in this discussion when we should be perfectly frank with the public, with our patients, and with ourselves. The existence of blindness from this disease is a reproach alike to our profession and to our civiliza-

tion. But until we appreciate that fact we will never put forth the necessary effort to abolish it. For a physician to lose a patient from diphtheria, in whom he has not used diphtheritic antitoxin, is to subject himself to the censure of the public no less than of the profession. Whenever, from a more general knowledge and aroused public interest, we look at ophthalmia neonatorum from this high ground; whenever its occurrence in our practice is held, both by the public and the profession, to be a reflection upon the physician; whenever from this disease our reputation begins to suffer one tithe as much as does the vision of our innocent, helpless, hapless patient, then we will begin to exert ourselves, then we will use a 2 per cent solution of nitrate of silver in the eyes of all newborn children where there is a suspicion of infection, and then, and not till then, will this disease and its resultant blindness cease.

But you say to me: "This is practical enough where a physician attends the labor, but what about the large number of children delivered by filthy and ignorant midwives?" "Ay, there's the rub." Here is needed the combined wisdom of us all. Can it be done by law; and if not, can it be done at all? I am free to say I can see no way to do it except by law; and such a law would be difficult to pass and still more difficult to enforce. But let us not despair. Further effort may show us the way. A State law requiring all midwives to pass an examination before a properly constituted board of physicians, or health officers, would probably be the first step in the right direction; and the further regulation and control of them might be evolved by time and effort. Certainly it will be possible to reduce, if not to eliminate, blindness from this disease, whose continued presence is an evidence of the vice of parents and the ignorance—or, still worse, the carelessness—of the medical attendant.

DISCUSSION ON THE PAPER OF DR. WOOD.

DR. M. M. CULLOM, of Nashville:

Mr. President and Gentlemen—This paper of Dr. Wood's appeals to the humanitarian instinct of all of us, whether we are physicians or laymen. The idea of a little child losing its sight is something terrible to contemplate, when we think of the years of life that are before it in its helpless condition. There is nothing that will touch the hardest heart more than to see the institutions of the whole country filled with

these blind children who have been deprived of their sight by this terrible disease. The fact that it is preventable makes the reproach all the greater.

When Crede formulated his method of treating the eyes of the newborn child, he conferred a great boon on humanity. It is a reproach that the profession has been so slow in adopting Crede's method. The children who have been deprived of their sight by this disease become a charge on the public institutions of the States, and the economic loss to the different States is enormous.

The method of using the two per cent. nitrate of silver is a simple one and one that can be used by any practitioner, and the use of these salts, whether the nitrate of silver, or the newer salts, should be adopted as a routine measure. In my special line I have, of course, had no opportunity to make use of these preparations, but my belief is that the use of the newer silver salts would be preferable in these cases to the nitrate of silver. The salts I speak of are protargol and argyrol. They have a more penetrating effect than nitrate of silver, and they seem to kill the gonococci more effectually in the tissues. I think the use of a twenty per cent. solution of argyrol would be more effective than the use of nitrate of silver, and if used in this per cent. the infection would be reduced to nothing practically, instead of one or two per cent., as is often the case where nitrate of silver is used exclusively.

This is a very important problem, and I think it should receive the closest attention of the profession. Prophylaxis should be discussed, as it opens up the whole question of prevention of venereal diseases, which is one of the great problems that confronts the profession. I think it would be wise if some formal notice was taken of this paper and some Committee appointed to investigate this question thoroughly by this Association.

DR. LOUIS LEROY, of Memphis:

The paper as presented by Dr. Wood is one which should be taken up, and one which should be borne in mind by our various Hospitals throughout the State, as well as by the profession at large, because I have seen the Crede prophylactic method omitted on more than one occasion in these Public Institutions.

As to the point made by Dr. Cullom, that the use of the organic silver preparations are very effective, I agree with him rather fully, although there is much argument that can be offered in regard to their use. After the disease is once established we get infiltration of the deeper layers of the cornea with the gonococcus. At first, however, when the child is just born, there is no infiltration of these tissues. The gonococci are simply present on the surface, and for that reason nitrate of silver will kill them about as well as any of the other preparations. If infection occurs, the deeper layers are infected, and the nitrate of silver, will not penetrate as deeply as the organic silver salts will.

Twenty-five per cent. solution of argyrol is as efficacious a germicide as the silver nitrate.

There is also another advantage to which I would like to call your attention, and that is the fact that the organic silver salts—argyrol, protargol, argentamin—are fairly permanent in all conditions, whereas nitrate of silver is one of the easiest of all salts to decompose, and if it is exposed to sunlight for some time, in the course of a few days it will be far from a two per cent. solution, especially so if, as I have seen more than once, the nitrate of silver solution is put up in a bottle with a cork stopper. If we use nitrate of silver, it should be made comparatively fresh and put up with a glass-stoppered bottle.

DR. S. S. CROCKETT, of Nashville:

This subject should be discussed from a little different standpoint than that from which it has been approached. I thoroughly agree with everything Dr. Wood has said, and I can endorse everything he says as to the pathos involved in these young children. But the question is not to deal with the problem after it has occurred, but to lock the stable, so to speak, before the horse gets away instead of after. I wish Dr. Wood had been more specific as to how to prevent ophthalmia neonatorum. He said the Crede method ought to be used in all cases in which a purulent infection is suspected. I have not been able to tell always just when a purulent infection was present. I find this a difficult thing to determine. I have been practicing medicine for many years: I have had a reasonable experience in obstetrics, yet it has been my fortune never to have seen a case of ophthalmia neonatorum. It is true, my work has been not among the hospital class, but among a better class, perhaps, than we see in our hospital work. But is it going to be necessary for us to use nitrate of silver in the eyes of every baby that is born? Of course, if we could prevent blindness in one case in a lifetime, it would justify the practice; but when to suspect infection of the eyes, is there, and how to know, it is there beforehand, is the important question to gentlemen who are engaged in the practice of obstetrics.

Another important point relating to the prevention of this infection is to be sure the eyes of the baby are inspected the next day after you go back to see it. It is equally as curable as it is preventable, as pointed out by Dr. Wood, but an important point in its curability is to detect it early. If we wait until after the second day, when the eyes are discharging, a fatal keratitis may have supervened, but if the condition is detected as soon as it begins, then it is curable.

I doubt very much whether we can induce men who are practicing obstetrics to use nitrate of silver in the eyes of every baby that is born. I doubt whether that will ever be practicable or not. We cannot reach that point with the midwives, unless it is possible to be able to detect the presence of this infection early, say on the second day, or better the first twenty-four hours.

I do not believe—and I am speaking now from personal experience—that the gonococcus is as prevalent as it is generally thought to be. Where there is the least suspicion of a purulent discharge, or any discharge preceding delivery, I sterilize the vaginal canal before delivery, and I believe that is the only condition in which the antepartum douche is justifiable, and that is the only cause which calls for the antepartum douche, and it may not be necessary to use it then. I do not believe a simple douche is worth a cent. I do not believe a douche will prevent trouble in the presence of infection before delivery. Nothing short of scrubbing out the vagina with gauze sponge, with soap and water, scrubbing it out as if you were going to do an intravaginal operation, will suffice.

DR. JERE L. COOK, of Jackson:

This is one of the most important subjects that can come before the Association at this time, having in mind the prevention of one of the most terrible scourges with which humanity is afflicted.

I differ from the remarks made by Dr. Crockett in reference to the use of a two per cent. solution of nitrate of silver in private practice. I think it is extremely important that we really comprehend fully the significance of this paper, and that we place ourselves on record unequivocally as favoring, advocating and personally practicing the instillation of two per cent. solution of nitrate of silver, as advocated by Crede in every case, going on the principle that we believe all of the eyes infected. In that way, suppose we save one case of blindness in private practice, it is worth the effort, and practically no harm is done to the baby's eyes. It is the only way to solve the problem—to make this a universal practice. It ought not to be necessary to force our colleagues, at the hands of the law, to do this simple thing when the experience of the past few years and statistics regarding blindness from this disease are so very clear on the subject that we can absolutely prevent it.

The few instances mentioned by the doctor in his paper where failure occurred, might probably be due to negligence and to not having the solution in proper condition, as mentioned by Dr. Leroy. Also, I wish to say, I do not think it advisable to promulgate the idea that we should make a change in Crede's original method in favor of the organic compounds of silver, for the good reason that nitrate of silver is available in every place where physicians practice medicine, while some of the organic compounds, on account of their expense and newness, have not permeated the remote country districts. There is very little danger from the most ignorant practitioner making a mistake about Crede's method, which has been practiced for so many years that everybody practically knows about it. The nitrate of silver is an excellent agent to use before the gonococci have invaded the delicate structures of the eye. On the other hand, if we have a case of ophthalmia neonatorum developed, then is the time to use a 25 per cent. solu-

tion of argyrol, because you can cure the case with that without damaging the conjunctiva or cornea.

DR. S. S. CROCKETT, of Nashville:

Dr. Crook misunderstood me. I was not combatting the idea of the use of nitrate of silver. My idea was to make an inquiry of the gentlemen who are authority on this subject as to whether we should use it in every case, or should we use it only in those cases in which there was some evidence of infection.

DR. A. F. RICHARDS, of Sparta:

Just a few words in regard to Dr. Wood's paper, which I regard as an excellent one.

I agree heartily with Dr. Leroy as to the preference for the nitrate of silver solution to the other silver salts because we find the gonococci on the surface at the time we use it. Especially do I want to refer to the point he made as to the legal management of prevention, because throughout the country it has been my experience in my county that all of the cases of ophthalmia neonatorum I have seen have been in children delivered by midwives who are not legalized practitioners, and who are not qualified or competent to do the work.

I call to mind three cases of blindness in my county that occurred since I have been practicing medicine, the children having been delivered by midwives, and I do not recall but one case of ophthalmia neonatorum in which delivery was effected by a physician, and only one eye was lost in that case.

The practical way to get at this thing is to prevent it, and the way to prevent it among ignorant people is by law, and the way to prevent it among intelligent people, such as physicians ought to be, is by instruction, just by such papers as Dr. Wood has presented here to-day, and if every physician who delivers a baby would bear in mind the paper that has been read and the instructions given herein, namely, to use a two per cent. solution of nitrate of silver in these cases, he will be on the safe side. It might be a good idea to adopt it as a routine practice. There are ignorant midwives who are delivering babies all over this country, who do not know and cannot be held responsible on account of their information. I know of no way to prevent these things except by the passage of some law regulating the practice.

DR. CHARLES P. McNABB, of Knoxville:

I am not an oculist, nor do I practice obstetrics now, but did practice obstetrics for twenty-five years, and of five hundred or more births I attended I had six severe cases of ophthalmia neonatorum, and in every one of them I used a two per cent. solution of nitrate of silver. The point I want to make is this, that a two per cent. solution of nitrate of silver is not destructive of gonococci infection, nor is it a destroyer of pyogenic bacteria. While my experience may not be sufficient

to base an opinion on, yet the introduction of this solution into the baby's eyes is liable to be followed later by infection by pyogenic bacteria on account of the local irritation it leaves and of the uncleanly handling of the baby by the nurse. It was my practice to use sterile water, and by washing the baby's eyelids and the eyelashes good with it there was little danger of sore eyes. I am inclined to believe that a two per cent. solution of nitrate of silver predisposes to infection rather than prevents it. If the truth were known upon this point, doubtless as many or more infections of the babies' eyes come from careless handling in the first few days after its birth than at the time of birth, and from the parturient canal of the mother. Not all of these eyes are infected by the gonococcus.

DR. G. E. VAUGHAN, of Clarksville:

Dr. McNabb's remarks, I think, are rather extreme, still they call our attention to the point that the instillation of nitrate of silver in cases of ophthalmia neonatorum is not without harm in some instances. The first case I ever saw in which ophthalmia neonatorum was suspected was one in which nitrate of silver (two per cent. solution) was used and had caused so much irritation that it kept up for two or three days, but upon the prompt withdrawal of the use of nitrate of silver the irritation and inflammation subsided. There was considerable secretion from the eyes in this case, but no germs could be found.

The most important part of Dr. Wood's paper is that which relates to the regulation of midwifery practice. I believe ignorant midwives are the cause of most cases of ophthalmia neonatorum, and I believe we can accomplish more by working on that line.

I was surprised to hear the doctor say that he has met with this disease in cases that have been in the hands of prominent physicians in cities. That is not true in our section of the country. I have not seen a case of ophthalmia neonatorum in ten years in private practice, and the only cases I have ever observed were in my hospital work. I think this disease occurs mostly in the larger centers of population.

In regard to the use of nitrate of silver and the organic salts, I don't see any objection to using the organic silver salts, if the germs are on the surface the salts will kill them. The organic salts are harmless, particularly argyrol in 50 per cent. solution in place of 25 per cent. I have used it in muscle operations on the eye without getting sloughing of stitches following operation. If 50 per cent. solution of argyrol will kill the germs, and does no injury to the cornea, why do you want to use nitrate of silver? Dr. Crook says that we ought to use nitrate of silver because we can find it everywhere, and that argyrol has not gotten into the remote districts. (Time called.)

DR. G. M. BURDETTE, of Lenoir City:

I wish to emphasize the position taken by Dr. McNabb in this matter. After forty years' practice I can recall but one case of ophthal-

mia neonatorum, and while this case was treated with nitrate of silver, it took me about six weeks to get rid of the infection. I invariably use sterile water. I use two sizes of sterile cloths; I wash the baby's eyes thoroughly with sterile water, and have never had any trouble following since adopting that practice. The indiscriminate use of nitrate of silver I cannot support. I don't believe it is right.

DR. C. J. CARMICHAEL, of Knoxville:

To me this is an intensely practical subject, but it seems we are inclined to attach too much blame to the midwife. I see no condition which would make ophthalmia neonatorum more susceptible in this class of ease than it would be under the care of a physician, provided the physician does not proceed with the routine irrigation of the nitrate of silver. If a midwife is waiting on a patient who is infected with the gonococcus, that baby is liable to infection. If a doctor is waiting on the same type of patient he may have infected the baby's eye the same as a midwife does, unless he carries out the prophylactic treatment.

I am sorry Dr. Wood is not in a position to collect and give us statistics of the percentage of cases that occur in the practice of physicians as compared with those that occur in the hands of midwives. There is no doubt in my mind that a large percentage of the cases of ophthalmia neonatorum that occur in the practice of general practitioners is due to the fact that we are not suspicious enough. He has suggested that we use the nitrate of silver in those cases in which we suspect gonorrhea. It was my misfortune to have a case develop in my practice, and since the teaching of specialists that a two per cent. solution of nitrate of silver instilled into a baby's eyes is harmless at birth, I have made it a routine practice. I believe it is impossible to determine when we have infection, or are liable to have infection, and when we are not. We find sometimes an infected patient among a class of people where we would not suspect it. We might say, the people were above suspicion. So long as we, as physicians, are compelled to deliver these patients just as the midwife does, I see no reason why we should not have cases of ophthalmia neonatorum the same as the midwife does. I do not think the gonococci are carried on towels. If you get infection, it comes from the vagina of the patient, and it is not due to a filthy condition of the surroundings.

Dr. McNabb seems to think that nitrate of silver produces harm or damage to the eyes of some of his patients. I believe that the routine practice of using a two per cent. solution of nitrate of silver in a baby's eyes is harmless and is a sure prophylactic, and for that reason I carry in my obstetric bag such a solution, and I make it a routine practice, and since I have done this I never expect to have another case of ophthalmia neonatorum if this is a sure prophylactic. I have never injured the eyes by its use.

DR. A. G. KYLE, of Knoxville:

Away back yonder, fifteen or twenty years ago, I had a case of ophthalmia neonatorum occur in my practice because I did not take the necessary precaution. I see no reason, as the preceding speaker has said, why this infection should not occur in our practice as well as in the practice of midwives, if we do not take the same precautions. I have seen it occur in a number of cases, having practiced for a number of years in a large mining section, where it occurred in the hands of competent physicians. I began to study the subject. I am not a specialist, but I began to study the subject a few years ago, and the first thing that occurred to me was just how little we knew about this common disease, and since I have understood something about it, it has occurred to me, as the essayist has pointed out, how little the average practitioner knows about the disease. It was, indeed, a boon to the medical profession when Neisser discovered the gonococcus, and we think, since that time, it must be criminal to have a case of this kind to occur in our practice.

I agree with Dr. McNabb, that one of the best antiseptics we have is nature's antiseptic—clean water, and plenty of elbow grease—but it does not go far enough. Water will not wash away all of the gonococci. Then, what harm is there in instilling into the eyes of a baby a two per cent. solution of nitrate of silver? So far as nitrate of silver and its salts are concerned, I believe where the gonococci are on the surface there is nothing so good as the nitrate of silver, and where they have penetrated beneath the surface and the nitrate of silver cannot reach them, the next best thing is one of organic salts.

I have had occasion to gather some statistics of this disease, so far as it is possible, and it may surprise some of you, who have never studied the number of men who have been affected with this disease, to know that, at least, 80 per cent. are affected, or have been, with gonorrhea, and following up my first suggestion that the disease is not thoroughly understood and not thoroughly treated, and following up the idea of the infection still remaining, then, gentlemen, how many women of the country must also be affected with this disease? If so many women are affected with the disease, how many children must be subject, in the process of labor, to infection also? If 80 per cent. have been infected, are we not justified in trying to save the other 20 per cent? We should make it a routine practice of first cleansing the eyes of the baby thoroughly; then instilling into the eyes nitrate of silver, because, I believe, it is better than any other silver salt, when the gonococci are on the surface. When the gonococcus has penetrated beneath the surface, it is better to use one of organic silver salts.

DR. J. W. BRANDAU, of Clarksville:

I would like to give the results of my experience. I will simply state my method and results in these cases. I have always made it a

rule, after the child has had its usual bath, for it to have another thorough washing of the eyes with normal salt solution, and then I make it a point during my visit on the second day to examine the child's eyes, and if I find any evidence of irritation, I use nitrate of silver. I do not believe I have had ophthalmia neonatorum in more than one-half of one per cent. of all cases, and I have never failed to relieve it promptly by the use of nitrate of silver. I have never had a case result in blindness. They have gotten well with thorough washing with boric acid solution, followed by the use of nitrate of silver; usually in two or three days.

DR. W. D. HAGGARD, of Nashville:

I want to offer the following resolution:

Resolved, That the Tennessee State Medical Society endorses and earnestly recommends that Crede's method of the instillation of a freshly prepared solution (two per cent.) of nitrate of silver be employed in every new-born infant, and, further, that the suggestion for the examination and registration of midwives be referred to the Committee on Legislation with endorsement and the request that they consider it with a view of introducing a bill in the next Legislature.

(See minutes of General Meeting for disposition of this resolution.)

DR. H. P. COILE, of Knoxville:

It has developed in this discussion that more than one instillation of nitrate of silver has been used. If I understand the remarks of one of the gentlemen who has spoken, it has been used for two or three days, and that irritation has been produced by it. I do not believe it would be the sense of this Association to vote for the continuous instillation of nitrate of silver in a baby's eyes for three or four days. My own idea has been that one application was sufficient in most instances. That is the point I want to raise and which seems to have developed in this discussion and has not been settled.

DR. M. C. McGANNON, of Nashville:

I am not an ophthalmologist, and I only rise to point out certain conclusions that naturally come to me as the result of this discussion. These conclusions are as follows:

Dr. Wood has not told us the name of the microorganism that produces this disease in all cases, and I think it will be admitted that it is not always gonorrhreal infection. In the next place, we observe from this discussion that the disease occurs much oftener in cities where there are large clinics and where larger hospitals are to be found than in country districts. The statistics given here have been largely drawn from these centers. The conclusions I am trying to point out will necessarily have a great bearing on the resolution that has been presented. This resolution is rather extreme because many of the gentlemen who have spoken on the subject have stated that in their experience they have never seen a case of this disease, and they are men who have

practiced for years and years in the country districts, and who would be loath to vote for a resolution of this kind, for the reason, it would seem that many children who come under observation in obstetric practice would be subjected to irritation of the eyes, unnecessarily.

Another point about it is this, that while it is advisable to have some sort of legal enactment by which midwives will be subjected to some form of restraint and examination as to their efficiency before they are permitted to practice their profession, yet, at the same time, it must be observed that midwives practice in the cities where these cases occur in the hands of general practitioners as well as in the hands of the midwives, and consequently this disease is one that is confined to a large extent to populations that are massed together, and where this great disease (gonorrhea) will exist to a greater extent than in other localities.

It seems to me that this question is largely one for the education of the profession and not for such a broad and sweeping resolution as that which has been presented. It seems to me, the conclusions we may draw from the discussions are that this disease does exist; that the patients we find in the asylums blind as the result of the disease, came from the country districts, and that it is easy of transmission. These unfortunates do not come from the country districts, but from our big cities where large clinics are held. Some practitioners who come from the country districts tell me they have never seen this infection, and it would be difficult to get them to use a two per cent. solution of nitrate of silver in every baby's eyes. I recall two cases of this kind, one in which the disease was traced to gonorrhreal infection, and the other in which there was no suspicion of gonorrhreal infection. In the first case no blindness followed. The patient was treated after the disease began, the following twenty hours, and the child recovered without blindness. In the other case in which there was no suspicion of gonorrhreal infection, the child lost one eye, although that child was treated from the beginning by a specialist in diseases of the eye.

I think it would be a mistake for this Society to put its stamp of approval on the necessity of every physician in connection with this Association being compelled to instill a two per cent. solution of nitrate of silver into the eyes of every new-born baby. I think it would be a mistake to vote for the adoption of such a resolution.

DR. LOUIS LEROY, of Memphis:

The question, as I see it, is not whether the gonococcus is the only thing that produces ophthalmia neonatorum, but the point is simply this, will not the universal instillation of nitrate of silver give us a less proportion of cases than the avoidance of it? In other words, the greatest good to the greatest number. It has been stated that the instillation of nitrate of silver produces irritation of the eye. I have seen it used in a good many cases in the New York Lying-in Hospital, and in other institutions, but have never seen a case in which one drop

of a two per cent. solution produced inflammation. Therefore, I see no reason why we cannot put ourselves on record as favoring a method which will do no harm and which will certainly, in some cases, do good.

DR. LEON SHEDDAN, of Fayetteville:

I am practically from the country. I have practiced medicine in the country and I am what might be called an oculist, a gynecologist and obstetrician, and I want to put myself on record against this resolution as it stands. If this Society goes on record as recommending Crede's method in every case, it almost of necessity compels us to practice it. Let us suppose that a case of malpractice should come up, the evidence might turn against me, or any of you because we did not use the nitrate of silver solution, yet the State Medical Society has gone on record in favor of it and anyone who has not used it is liable to face such a charge. I have been in the practice of medicine for fifteen years and have been doing a fairly good-sized practice, and I must say I have not, for the first time, put nitrate of silver into a child's eyes, and I have yet to see a case of ophthalmia neonatorum in my own work. This may not hold good in the large cities, but in the rural districts the percentage of cases of ophthalmia neonatorum is very, very small. Which is the better, asepsis or antisepsis? I agree with Dr. McNabb, that if we cleanse the child's eyes, it is better not to use a chemical solution. Dr. Wood's position, I think, is the correct one to adopt.

If you have a suspicious case, use a prophylactic. In every case the use of a two per cent solution causes desquamation of the epithelial structures of the eye, rendering it more susceptible to infection. You will find sometimes cases of ophthalmia neonatorum because midwives have infected them; in other cases, the infants have been infected by their mothers. If we have a suspicious case, prophylactic measures should be instituted. On the other hand, in country practice especially, where the woman is clean, in clean surroundings, and we know our patient and have no cause to suspect a specific disease, I am convinced that this practice is unnecessary. I have the child's eyes carefully cleansed and instruct the nurse and mother to notify me should the eyes begin to show any symptoms of inflammation.

Therefore, I am against this resolution which would give it a medico-legal aspect.

DR. GEORGE H. PRICE, of Nashville:

The paper presented by Dr. Wood is not a discussion of the treatment of ophthalmia neonatorum, but it is a discussion of the sociologic problems which underlay this ever-present condition. The dangers of ophthalmia neonatorum are not absolutely limited within themselves to the individual patient, but ophthalmia neonatorum is such a contagious disease that its very presence in a household at once renders the situation exceedingly complicated, and other members of the family are liable to contract the disease. The dangers of ophthalmia neonatorum

per se relating to the individual patient are very great, and fortunate indeed is the man who discovers the condition early enough to combat the symptoms and to relieve the case.

As to the prevention of ophthalmia neonatorum, I am very much surprised to have heard from members of this Association some of the experiences which they have related in the use of a two per cent. solution of nitrate of silver. Before the introduction of the method of Crede for the prevention of ophthalmia neonatorum, fully 75 per cent. of all blind in asylums of continental Europe were due to this condition of purulent ophthalmia in the new-born, but since the introduction of that method of procedure, prophylactic in character, this has been reduced continuously until it has reached a point where it is far less than formerly. Therefore, the impression we should gather, and the conclusion we should come to, in regard to this method of treatment is that it is above all others the treatment to be applied.

As to the instillation of nitrate of silver producing a marked inflammatory process, that is contrary to the experience of a large number of practitioners not only here, but throughout the entire world, because Crede's method of prevention of ophthalmia neonatorum is practically adopted wherever civilization and wherever the practice of medicine has reached the point where preventive measures have any standing at all. A very strong solution of nitrate of silver may temporarily produce a slight inflammatory reaction, and the continuous instillation of nitrate of silver may produce an inflammatory process, but that inflammatory process will subside upon the cessation of the application.

There is another point to which I desire to direct attention, and it is an important one indeed, namely, it is not everyone who attempts to put nitrate of silver or sterile water into the eye succeeds in doing so. That seems to be a matter of slight importance, the putting it into the eye of a child, and yet, I want to say to you, it is not infrequently a difficult matter to do, and especially in little children; unless the lids are pressed widely open, and the silver is instilled inside the palpebral fissure, the nitrate of silver will be caught on the margins of the lids, and the lashes, and will be turned aside and not enter the eye at all. It is well enough, if we have but one case of ophthalmia neonatorum occurring in the State of Tennessee within one year, if that patient is saved from the results of an inflammatory reaction of this character and prevented from being blind, the effort is then worth while. But while it is not an absolute necessity in every case, so far as the condition *per se* is concerned, to make this application, yet in order to avoid the possibility of contagion or infection from any source whatever, the routine practice of putting a two per cent. solution of nitrate of silver in the eyes of a baby is a good thing, and Crede's method was the instillation of it one single time. If a reaction sets up in two or three days, we must suspect that there has been reinfection, or a very serious infection in the first instance which the nitrate of silver did not suc-

ceed in checking. But any inflammatory process about the eye of the infant, no matter how simple it may appear, will appeal to the general practitioner for active and immediate treatment, and I know of no better method by which to accomplish this.

So far as silver salts are concerned, let me say one word. Those who have investigated the question of the use of various silver salts in the eye in cases of purulent ophthalmia in the child and ophthalmia in the adult—and my experience corroborates the investigations of others—say that of all the silver salts which will attack and destroy, either superficially or the germs deeply seated in the membrane itself, the best is protargol.

DR. B. D. BOSWORTH, of Knoxville:

I just want to say one word in answer to the gentleman from the country. We honor the country practitioner above every other, but this is a day when a case of ophthalmia neonatorum coming up in any obstetrician's practice usually means a damage suit. I congratulate the gentleman that he has escaped any contact with this disease in his own practice, but I believe we should throw around him the protection of this Society by some such remedy as has been suggested, in order that he may declare that he has followed out these instructions and may answer the suit for malpractice in that way.

DR. W. G. FRIERSON, of Shelbyville:

My opinion is that, above all things on earth, this matter will be kept quiet by the parents when the child is infected with ophthalmia neonatorum. They will not enter suit. They will not suggest it on account of the odium that it brings on them, and, it seems to me, as though we have drifted somewhat from the paper and from the discussion.

DR. E. H. JONES, of Murfreesboro:

I do not want to underrate the value of Crede's method, for I am sure most of us agree in regard to it, but I think the precedent we have started out with on this occasion is not altogether right. We came here for information, and if we can get it from this paper, then we should follow it out, and those who will not do it may have bad results. I think Dr. Sheddan has struck the keynote, and personally, I am in favor of stopping the discussion and letting the matter pass.

DR. WOOD (closing the discussion):

I feel very grateful to you, gentlemen, for this very elaborate and learned discussion, and if there is any credit due for having brought this subject before you I cannot claim it. Our President selected the subject, and I simply carried out his instructions in presenting it to you, and if there is any credit due, it certainly belongs to him.

As regards ophthalmia neonatorum we all know what to do. Every doctor knows what to do. The paper did not go into a detailed state-

ment of the different preventive measures, such as vaginal douching, and irrigation of the eyes, as suggested by Dr. McNabb, and the use of the silver salts. Everybody knows what to do. The trouble is not that we do not know, but that we do not do what we know.

The question comes up in this discussion, when should you use nitrate of silver, and whether you should use it in every eye or only in some. In the paper I stated it should be used in all suspected cases. Whether it should be used in every case is an open question; but I believe if you make a six-grain solution you are on the safe side.

In a case cited by Dr. Vaughan, in which the nitrate of silver solution was repeated, there was a violent inflammation following. The repetition of the solution would result in the inflammation of any eye in this house. The preventive treatment is simply one instillation, and only one. Any eye will become inflamed if you repeat the solution. I do not know of a case on record that has ever been observed where one single instillation of a reasonably strong solution, from five to eight grains, ever produced damage to the eye.

With reference to Dr. McNabb's cases, he had, in all probability, post-natal infection. We have those cases every once in a while, and that may have been true with the doctor's cases. I do not say it was, but we see these cases from time to time.

As to the relative value of the different silver salts, they have been very successful. I have nothing to say against the organic silver salts. Protargol, argyrol, etc., are perfectly good; they have been recommended and have been used successfully; but the nitrate of silver has been used more times than all the others put together, and it is successful.

As to the percentage of blind from the country and city, for years Dr. Crockett and I did a lot of work at the Blind School in Nashville. Dr. Crockett had charge of the children in general and I helped out in treating the eyes, and I think the doctor will agree with me when I say that the children suffering from ophthalmia neonatorum came from everywhere. They came from the towns and cities.

I believe the way to prevent ophthalmia neonatorum is, first, as suggested by Dr. Crockett, cleanse the vagina by swabbing it out, not irrigating it. Irrigation will not cleanse the vagina. Expose the patient, use a Sim's speculum as you would for an intra-surgical procedure. Follow with secondary irrigation, as suggested by Dr. McNabb, immediately upon tying the cord and separating the child from the mother, using a six-grain solution of nitrate of silver, which is one and one-fourth per cent., preventing the post-natal infection during the subsequent washing of the body of the child and subsequent nursing for the next few days or weeks afterwards.

TWO AND ONE-HALF YEARS' USE OF INTRA-MURAL INJECTIONS OF THE SALICYLATE OF MERCURY IN THE TREATMENT OF SYPHILIS.

J. W. HANDLY, M. D., NASHVILLE.

ABOUT two and one-half years ago I commenced treating syphilis by intra-mural injections of salicylate of mercury, and the results have been so gratifying that I am impelled to write this paper outlining my experience. Prior to this time I had used deep injections of the soluble forms of mercury, the results being so painful to the patient, both at the time and afterwards, and the good accomplished so unsatisfactory, together with muscular infiltrations and abscesses, that I abandoned its use, relying for many years upon inunctions and per oram. These lines of treatment being unsatisfactory to the patients, I again sought other fields with the hope of better results, landing upon the salicylate of mercury by intra-mural injections.

The suggestions of Dr. William S. Gotthiel, dermatologist to city hospital of New York City, were carefully studied and to a degree carried out, at times making changes and modifications to suit the cases, while, in the main, his suggestions as to dosage and intervals of treatment were adhered to. The syringe which I hold before you unquestionably meets the requirements in every case. Being devised by him and bearing his name, it is now in the hands of thousands of physicians in this country, who are doing much good for the unfortunate sufferers. Since commencing its use, I have never had an abscess to form, and very few muscular lumps have resulted, all of which have disappeared without any serious trouble or pain to the patient. I attribute my good work to the technique I follow, and which I will outline below:

First—The injection site is cleansed with hot water and green soap, while a wad of absorbent cotton, saturated 1-1000 corrosive sublimate solution is held by assistant or patient for a minute or more.

Second—The syringe is filled with the well-shaken suspension, the needle passed through an alcohol flame and slipped in syringe, which, having a broad-end plunger, will allow its being stood on end.

Third—The site is washed with ether for antiseptic and anæsthetic effect.

Fourth—The needle, with syringe attached, is then plunged to the hilt in the gluteal muscles, on a line between the great trochanter and lower end of sacrum. The more rapidly done the less pain to the patient.

Fifth—The syringe is now removed from the needle, the lumen watched for fifteen seconds to see if a drop of the suspension or blood begins to bulge. If you have penetrated a vein, as indicated by the above, the needle must be withdrawn, opening sealed with collodion or plaster, and another puncture made with same care as above suggested. To inject the suspension into a vein, will cause much distress in the lungs by plugging the small veins, causing a short, hacking cough and local pains, which lasts for hours. I have had one case with these symptoms after an injection.

Sixth—The syringe is now reapplied, and suspension slowly injected.

Seventh—The instrument is rapidly withdrawn and opening sealed with collodion or plaster.

Now for the mercury suspension, the dosage and the interval between treatments.

The salicylate of mercury, being insoluble, a 10 per cent suspension in benzoinal or albolene is used. The syringe, having a long, narrow barrel, is graduated in minims, one to ten, each minim representing one-tenth of a grain. By this arrangement we can arrive at the exact dose desired, always being careful to push the plunger until no air remains in the needle or syringe. The average dose is one grain, but varies from 3-10 gr. to 1 gr., or even more in some cases. The average time for the interval is five days in early cases, seven to ten days in more ancient ones. The buttock is the usual site for puncture, care being taken not to puncture the great nerves passing down the thigh. To do so, or even the larger branches, causes prolonged muscular soreness, amounting to lameness. The mercury is supposed to be absorbed in from seven to fourteen days, so it is advisable to alternate the buttocks

as the treatment goes on. Dr. Gottheil recommends smaller doses and longer intervals, but my experience with it justifies the statements made above. The treatment can be kept up indefinitely, but I stop it from time to time for a fortnight to allow the system to take up any residue that may remain, and to overcome the habit that has been forced upon it, so that when we commence again, it will take hold with renewed vigor. There is no disturbance of the gastro-intestinal tract and far less liability to salivation, which can be absolutely prevented by a painstaking physician. Again, the physician has perfect control over his patient, knows exactly the amount of treatment he has received, dictates his coming and going, and does not have his remedies passed from one patient to another without his consent. There is no refilling at the option of the patient, who, under other lines of treatment, often takes the matter in his own hands, to his own detriment physically, and to the doctor's financially. In fact, you have the whole case in your hands to do with as you please. The first injections nearly always make the muscles sore and have a tendency to drive the patient off to some one who will not give him the pain, but a few suggestions to the patients as to what they are to expect usually pacifies their wounded feelings. After the first few injections the majority of patients prefer this line of treatment to any other, especially if they have been taking mercury per oram, either in pill form or solution. Nearly all patients prefer not to use the inunction, and, truly, I am of the same opinion, as I never know just how much mercury is being absorbed, some skins taking it up more readily than others. The inunctions are so filthy, and yet I believe much good is received from their use. I can recall a number of cases treated in recent years which yielded to the inunction when medicine by the mouth made no impression whatever upon the symptoms. Had I been using the intra-mural injections of the salicylate of mercury, I feed sure my results would have been better.

As soon as the spirochæta pallida are found in the secretion or scrapings of the lesion, I immediately begin the use of the deep injections. I believe early treatment by constitutional methods properly directed will modify the severity of syphilis to a great degree. I can report two very recent cases in which I commenced the intra-mural injections as soon as Dr. Litterer reported spiro-

chæta findings, which have shown absolutely no other symptoms than the initial lesion. The dose was $\frac{1}{2}$ gr. every seven to ten days, and now, nearly six months from time of infection, they have shown no symptoms whatever. Each case gave a clear history of syphilis, beside the spirochæta finding. Of the more than fifty cases seen in the past two years, the majority were to a large degree treated with the injections, and aside from an occasional ulcer or patch in the mouth or on the tongue, or transitory skin lesion, every one has done well. Relapses have occurred less often, while general conditions have shown up well.

During the time that injections were not used, I have resorted to a line of tablets I have used for several years which meet the indications. These tablets contain the soluble salts of mercury, and are used to take the place of the solutions, with their discomforts and unnecessary troubles. They are particularly well suited for traveling men, whom you cannot see oftener than every two weeks. Neurologists are using the hypodermic medication in late syphilitic lesions of the nervous system, cerebral and spinal lesions, associated with potassium iodide in doses to suit.

I have found excellent results in several cases with tertiary lesions of the skin, after the proper amount of the iodides have been given. It is advisable to follow the iodides with a two months' treatment of the salicylate of mercury at intervals of seven days, the dose being on an average about one grain.

The best effects of mercury given by the intra-mural injection method, is observed in the early skin lesions, the macules and papules fading away rapidly, when the proper dose is given. Many cases do badly when too much mercury is given, especially in this form. I have one case that cannot take a dose without a rise of temperature being caused, general depression, and is compelled to take to his bed for two or more days. He takes large doses of the inunction, tablets in good doses, but cannot take the injection.

In deep ocular lesions, as retinitis, choroiditis, iritis, I find the deep injections especially effective, particularly when combined with the iodides. To summarize, intra-mural injections are best for the following reasons:

First—Accuracy of dosage.

Second—Better control of your patient.

Third—Secrecy of treatment.

Fourth—No gastro-intestinal disturbance.

Fifth—Little tendency to salivation, which can be quickly controlled.

Sixth—Patient cannot give your remedies to other patients, thereby cutting out your other fee.

Seventh—Patient is not forced to take three doses a day, but one injection every seven to ten days.

Eighth—No smearing over the body with a filthy ointment, a tale bearer to those around him.

Ninth—The greatest good to the patient with the smallest amount of trouble.

DISCUSSION ON THE PAPER OF DR. HANDLY.

DR. JERE L. CROOK, of Jackson::

Mr. President—I have enjoyed listening to the very clear and concise exposition of this subject, and feel that we are indebted to Dr. Handly for exhibiting a syringe which is apparently a practical one. My experience, however, with this form of giving mercury in cases of syphilis is limited. I have tried it in two or three cases, and then not for any great length of time, due to the fact that the syringes I used were not very satisfactory. I tried several different kinds of syringes, but could not get the medicament or preparation into the deep tissues, as a part of it would collect behind the plunger, and the patient would not get more than one-half of the dose, and it was unsatisfactory in that way. In one case in which I used this method a few times, I got fine results. In that case I had the tertiary skin lesions which I mentioned to Dr. Handly on the way to this meeting. If I had a good reliable syringe to work with always, I would try this method of treatment. About two years ago Dr. Handly read a paper on this subject, and after hearing it I used it in my own practice. Some of the reasons given for the treatment are very good indeed. For instance, we have accuracy of dosage which is a good point. Then we have the fact that the patient must come back at regular intervals, so that we can keep up with him. Again, the patient is not compelled to take a nauseating dose of medicine three times a day, which, of course, is quite a thing to have to do in the treatment of cases of this character. I think one of the chief difficulties is to maintain the patient in close relation with us and get him to come regularly, so that we can keep up with every phase of his case. The majority of patients with this disease, after you have explained the character of the lesion and the necessity of two years or two and one-half years of treatment, will, of course, at the time you first tell them that, decide that they will let you treat them, and they will come until the primary lesion disappears, or if you have deferred the beginning of the treatment until after the secondary symptoms appear, they will come to you in much trepidation and make all sorts of terms for treat-

ment. The majority of these patients, unless you adopt a simple procedure in treating them, will not come to you for treatment very long. The majority of them, after the symptoms disappear, will quit coming, only to have the syphilitic manifestations reappear in some dreaded form at some later day. The method I resort to is this: I ask these patients for one hundred dollars at the start, and if they only pay me fifty dollars in cash, I take their notes for the balance, if they are worth it. I say to them that this one hundred dollars will give them two years' treatment, and if they pay this amount in the beginning, it is optional with them whether they come back or not. They have paid for this treatment and are entitled to it. If they do not, I am spared the necessity of worrying about it. Usually, if they have paid the one hundred dollars in full, they will come back, and I can assure you you will have them in your waiting room. It is a great mistake not to make them pay in advance, because otherwise they are apt to quit coming as soon as the symptoms disappear. This is in line with the admirable suggestion of our President, and it is to the doctor's interest as well as that of the patient to get the one hundred dollars.

DR. LOUIS LEROY, of Memphis:

I have a point or two to add to this discussion so far. One of the first causes of dissatisfaction with this method of the salicylate of mercury treatment is in the preparation of the suspension. There are two or more types of the salicylate of mercury on the market—one of them is quite coarse, the other being an almost impalpable powder. If you will see to it that your druggist uses the impalpable, powdered salicylate rather than the coarse, almost granular preparation, and if he will triturate it well in the beginning, and if you will shake the bottle well before putting it in the needle, you will have almost no trouble with the blocking up of the needle with the preparation. If, on the other hand, you get the granular preparation, and the druggist throws them together carelessly, any needle you may use will be blocked. But the main point is to have the druggist work on that preparation for about fifteen minutes or more before he puts it in a bottle for you, and it is not a bad idea to stand over him while he does it. If you will take care to have this one detail attended to, you will have no trouble with blocking up of the needle. Instead of benzoinol, I have used liquid albolene in the same way. It offers a simple, bland, oily liquid, which is not irritating or painful, for the suspension of the insoluble salt.

Another thing that strikes me as not being wise was brought out by the essayist, and that is the immediate use of mercury upon the recognition of the primary sore. I am confident that you will have more late troubles with syphilis if you start mercurial treatment before the outbreak of the secondary eruption. I have seen more late lesions follow cases treated early than in those in which we waited for the eruption to appear fully. I am cognizant of the fact, as the doctor said, that the recognition of the sore and the finding of the spirochaeta pallida in the secretion of the sore approaches a diagnostic certainty. I accept that as

clinching the diagnosis, but even then, and especially when a bacteriologic examination is not available, I certainly would not advise using any mercurial until the secondary lesions have made their appearance. In casting about for an explanation of this, I have in a hazy way formed the idea that spirochaetae are not bacterial in their nature, but are more closely allied to the trypanosomes, and therefore undergo a cycle of development, and there is no question but what they are far more vulnerable, and we can get at them much better when in the skin than when in the body and in a measure segregated, because they are more easily gotten at by the medication than if we start the treatment while they are as yet in the embryonic stage of development.

I see many cases in my clinical and hospital work that come from Hot Springs, and I am not exaggerating if I say that nine out of ten cases of the late syphilitic lesions I have seen during the last two years have come from Hot Springs, and have been cases which were treated immediately or within a few weeks from the development of the primary sore, before the secondary eruption was fully manifest.

As to the benefit of the mercurial injection, there is no question but that it is the surest and infinitely the most rapid method at our command. Another thing is that it does not disorganize digestion, and a good digestive system is one of the best assets that a man has in the overcoming of a syphilitic infection.

DR. CHARLES McNABB, of Knoxville:

I would like to ask Dr. Handly a question. I think he said that he injected a part of a dose into a small vein, after which serious pulmonary symptoms developed. My reason for asking this question is that I have been much interested of late in the reports of deaths occurring from the injection of diphtheria antitoxin in immunizing doses, and it seems that death followed within a minute or two, or much sooner than I thought it could follow from absorption of material injected subcutaneously. I have myself twice seen symptoms similar to those reported as following in the fatal antitoxin cases—one from a $\frac{1}{4}$ -gr. morphine and the other from a $\frac{1}{2}$ -gr. cocaine injection. The symptoms were alarming for a few minutes in both cases, but happily both recovered. I have been inclined to attribute those reported deaths to the intravenous injection of the antitoxin producing an intense vaso-motor storm severe enough to destroy life, and many other things thus injected would have produced the same results.

DR. HANDLY (closing the discussion):

Replying to Dr. McNabb's question, I specifically stated that there were some dangers from injecting part of the oily suspension into the vein, as it would be carried through the small venous channels to the vessels of the lungs, and as this case demonstrated, it was some twelve or eighteen hours before the bad effects of that were entirely overcome. The patient coughed considerably, and I felt much distressed about him. I thought he had some serious results following, but in the course of a

few hours the coughing became less, but it was quite twenty-four hours before he was quite comfortable again. I am satisfied that I must have injected some of the suspension into one of the veins, notwithstanding the fact I had removed the syringe from the needle and had washed it, as I do in every case.

DR. McNABB: How long was it after the injection before the pulmonary symptoms began?

DR. HANDLY: About five minutes.

With reference to the remarks of Dr. LeRoy, who spoke of the objection of using injections of mercury, or mercury in any form until the secondary symptoms have manifested themselves, I will say that his views are not at all in keeping with my ideas of the treatment of syphilis. I believe that if we give mercury to combat the disease after it has been fully developed in the system, we can combat it more readily before it is fully developed in the system. I have watched cases time and again, and I have found that where the disease had been in existence for four, six, eight or ten or twelve weeks, it was more difficult to get it under control than where it had recently come on, where the treatment was commenced within the first six weeks after the appearance of the primary lesion. I insist that in all cases of syphilis the treatment should be commenced as soon as the spirocheta findings are manifest, and I am going to continue this course, notwithstanding what has been said that the late lesions of syphilis will come on in these cases.

The cases Dr. LeRoy spoke of as coming from Hot Springs and as having been treated without manifestations of syphilis were undoubtedly of a doubtful nature, many of them, and the fact that these late lesions came on does not to my mind induce me to believe that the early treatment of the cases had anything to do with it.

SNORING, MOUTH-BREATHING, ETC.

G. E. VAUGHAN, M.D., CLARKSVILLE.

In the consideration of mouth-breathing, snoring, difficult respiration, etc., it is the purpose of this paper not to pursue the classical route in discussing the subject, for it is not a classical subject, but simply to treat it in a general way and speak of those things of most importance.

As the family physician is in a sense the guardian of the health of the household I deem that my few remarks may not prove so very boresome to this body of general practitioners. I think it is much to the credit of the profession that the public is so well instructed in regard to adenoids and tonsils, for not infrequently do parents, without any suggestion from their family physician, bring their children to be examined for this trouble. Yet our efforts at instruction and watchfulness should not cease here, for does the child after an adenoid or tonsil operation always regain its proper breathing and hearing? Unfortunately no, and there must be a reason.

Mouth-breathing, snoring, etc., is the result of some obstruction to normal nasal respiration, and it certainly can and should always be relieved. Snoring is caused by vibration of soft palate and uvula, the result of a partial vacuum which is produced in the nose when breathing through mouth. Snoring is sometimes met with, even when mouth is closed, which is due to faulty position of head or body, causing difficult or obstructed breathing. Mouth-breathing occurs also in people with heart and lung affections, but this paper does not apply to that class.

The most frequent cause of mouth-breathing in children is adenoids and tonsils. The next is hypertrophic or intumescent rhinitis, and I wish particularly to call attention to this, as it is frequently neglected. The enlarged turbinate is considered frequently to be the result of adenoids and tonsils, and yet it does not always disappear after their removal. So I am constrained to believe that enlarged turbinates, adenoids, and tonsils are all the

result of same condition—and not always dependent on each other. This condition is constitutional, and is the result of malnutrition and improper hygiene. The "fooler" is credited with the causation of adenoids and consequent mouth-breathing. At any rate the constant sucking and drawing of nasal and facial muscles has a tendency to alter the natural conformity of face and nasal cavities, and the habit should be condemned. As a rule, all here are familiar with the deplorable results of mouth-breathing in the young. The imperfect development of body and mind, drawing in of chest and depression of sup-maxilla, high-arched palate, deviated septum, degenerative changes in mucous membrane of nose and throat, which almost invariably affects the hearing; irregular teeth, with caries, and involvement of nasal sinuses, and consequent eye affections.

In the adult we notice an interference with sleep. Person will awake tired and unrefreshed from night's rest. His vitality is lowered and his constitution shows effects, by development of neuasthenia, headache, incapacity for work, indigestion, and its long train of symptoms. Not always do we find these symptoms so pronounced, and it requires acute observation and close questioning to discover them. But certainly it is true that mouth-breathing and its attendant evils is a very common affection, so common that it is commonplace, and does not receive the attention it should.

People are often unaware of mouth-breathing at night, but if asked if mouth, throat, or tongue is dry of morning, will remember this. It is sometimes the case that we have a perfectly healthy and robust-looking child to examine, who breathes through mouth occasionally, and there seems to be no decided indication for treatment, though child has moderately enlarged adenoids and turbinates. In an instance of this character an inspection of ear drums will often reveal much. If they are found dull and reflex hazy, it is evident that middle ear catarrh is present, and should be at once checked. Hypertrophic rhinitis is occasionally overlooked, for the reason that anteriorly no lesion is apparent, and the posterior tip of inf. turb. is often difficult to see by the throat mirror. It is my custom to always get a view of these posterior tips, which usually requires a palate retractor and probe passed through nostril to elevate posterior tip so it can be seen.

People are often unaware of ear involvement, and insist that hearing is all right, but when tested by forks is found to be much affected. This is due to the fact that the ear is arranged somewhat like a piano, and has little nerve tendrils corresponding to keys of piano, consequently the ear is perfect for some tones and quite lacking in others. The treatment of these conditions consists in removing the cause, which fortunately, can be done; as in children adenoids and tonsils are chief cause, their removal by instrumental means is demanded. This is accomplished by various instruments, and in my opinion, no one instrument will permit of a complete operation in all cases, for the reason that the vault of the pharynx does not present the same curvature in every case, and the older the child the more noticeable this is. Not infrequently there will be found a perceptible depression at the junction of roof of pharynx and septum, the seat of attachment of adenoid, and here the ordinary curette will slip over the growth. Sometimes we will even find adenoid growth extending into the nose, which requires an instrument passed through the nose to push growth into pharynx to be removed. The faucial tonsils do not require such radical removal unless there has been recurrent attacks of tonsilitis, and even this will often subside upon restoration of normal nasal breathing. In regard to enlarged turbinates in children, I usually advise that after adenoid and tonsils have been removed a reasonable length of time (say six months) be given, and if still have mouth-breathing and turbinates enlarged, partial turbinectomy or cauterization is demanded. I insist that during this six months' interval that constitutional treatment be religiously carried out, as follows: The greatest precaution in taking cold, as avoidance of draughts, wet feet, etc., is required. The proper clothing, particularly underwear, which should be very light during winter. Outdoor exercise and plenty of fresh air at night—bedroom should have no fire at night and well cooled off before retiring. Sponge bath in the morning on rising at a temperature depending on age of child and disposition.

It is very important that proper diet be given and medicines of a tonic and alterative character. This part of treatment I usually recommend that family physician supervise, for there may be some particular indication or idiosyncrasy of which he is cognizant. In addition to this, a nasal spray of essential oils in liq. vaseline is

prescribed. This medicine in young children, who become frightened at atomizer and cannot use it to advantage, may be dropped in nose by ordinary medicine dropper, with child lying on lap and head thrown back. When this plan of treatment has been carried out for a period of six months, and no improvement in breathing, it becomes imperative that the obstruction be removed, which consists in either deep and thorough linear cauterization of turbinates with electric cautery, or, better, a partial turbinectomy.

It is my conviction that a grievous mistake is often made by not following up cases on which we have operated for adenoids and tonsils and seeing to it that nasal obstruction is completely relieved and normal breathing established. The same plan of treatment applies in general to adults, yet I consider it even more important to look after constitutional treatment—breathing, fresh air, etc., here, than in children. In my opinion it is due to neglect of this on our part that patent medicine has to a certain extent been adopted by the laity, for there is no doubt that an old constipated dyspeptic, always with catarrh, feels better when a laxative has been administered—even if it is patent medicine.

DISCUSSION ON THE PAPER OF DR. VAUGHAN.

DR. N. C. STEELE, of Chattanooga.

I am very glad that Dr. Vaughan has brought this subject before the Association. It is very important, and one in which the general practitioner should have great interest. A snoring child means an obstructed nasal passage in nearly every instance. Parents will tell you it is a "habit." A snoring child has an obstructed nose, and an obstructed nose generally means serious trouble for the child. In dealing with children, we can do nothing much more important for them than to see that the nose is free from obstruction, so that they can breathe freely.

A mother brought a little girl to me last Saturday. She was a beautiful child, but the mother said: "She snores all the time; it distresses her father." I found that she not only had enlarged faucial tonsils, but an enlarged pharyngeal tonsil. Now, it would have been a great mistake to let that child go on and trust that she would "outgrow it." That is one of the superstitions and fallacies of the day—trusting that children will "outgrow" these things. So when you have a snoring child brought to you for treatment, you may be reasonably sure that you have enlarged faucial tonsils, and nearly always an enlarged pharyngeal tonsil. I insist that we should call the attention of parents to the existence and importance of this condition, particularly when it is found that their children breath with their mouths open when awake and snore

when asleep. When a little girl or boy goes about with its mouth open, you may be sure that child needs attention. You may notice this condition when you are called to see some other member of the family, and when this is the case, it may be more important for you to look after that child than the one you went to see, because it has chronic trouble, and before long the ears will become involved, and the general health impaired. The greatest danger is to the ears.

It is only in recent years that attention has been called to adenoids. I do not like the name, but that is the name commonly used. I believe the general practitioner should inform himself thoroughly as to this condition and be prepared to relieve or refer such cases to a specialist. The removal of the faucial tonsil may be sufficient. It often will do great good, but generally it is the pharyngeal tonsil that gives the most serious trouble. When you have a child who is breathing through the mouth, if you examine the throat you will undoubtedly find that the faucial tonsils are enlarged—sometimes not very much. So you examine the anterior nares to see if there is any obstruction there. If not, then the trouble is enlargement of the pharyngeal tonsil, and it is important to remove that growth or enlarged gland from the rhino-pharynx, so that air will play freely through the nose. They tell a story of Napoleon Bonaparte to the effect that he would not have a general in his army unless he had a nose through which he could breathe freely, in order that his brain might be clear to act quickly and reliably. I have many times used my finger to crush and scrape off soft adenoids, crushing them thoroughly with the fingernail of the index finger. That does very well in a few cases. I have used Gottstein's curette, as well as other forms of curettes, but they are not very satisfactory or scientific. True they do the work fairly well, and are better than nothing, but I prefer the pharyngeal tonsillotome—some call it the adenotome. There are several patterns on the market. I use Gradle's, of Chicago. If you get a Gradle, have the blade made solid to cut on the push. I have found this modified Gradle very satisfactory. You instinctively hold it more snugly against the curved posterosuperior wall of the pharynx and thus make a clean cut; and, secondly, the excised growth comes away in the concavity of the instrument, instead of dropping into the throat or mouth, as it does when any fenestrated blade is used.

DR. JOHN M. BOYD, of Knoxville:

I wish to call attention to a very important cause back of adenoids that is the common difficulty or misfortune of mouth-breathing, and that is thumb-sucking. This has not been mentioned in the paper as being prejudicial, but the habit of thumb-sucking I declare to be positively a very great danger to the child in its future life.

Take a child when its bones are pliable, if it contracts the habit of thumb-sucking, what is the result? If you push the arch upwards, maintaining its rounded position, you bring together the walls of that arch. If you push the vault of the mouth upward, you bring together the jaws. The maxillary bones must come together if they hold together

at all. You get an altered face, one that is different from the rest of the family. Remember that the septum between the nostril and the cavity of the mouth is only as thick as moderate pasteboard. The jaws come together easily. The nostrils are obstructed, and if you get a child that sucks its thumb in this fashion (illustrating) you soon get a disfigured face. You get partial breathing through the nose; you get mouth-breathing, and, following that, with imperfect aeration of the lungs, you get adenoids, with the liability of infection by germs which find a home there. Following that you get a catarrhal condition, and as the patient grows, there is liability to infection first, and of pulmonary tuberculosis which may follow a chronic bronchitis. I call attention to this matter because, it seems to me, as a cause of adenoids it is too often not considered. Look in a dental office and see the casts that are made in order to make a set of teeth. You will see casts for teeth above and for teeth below, and notice the great difference in shape. You can take a mouth-breather at the other end of this room and point him out above all others. Mouth-breathing is not infrequently noticed in young women, and in some of these cases the teeth are protruded. The patient breathes through her mouth, and sometimes I have seen cases where it seemed to me as though they could not bring the lips together. This is a serious mishap or misfortune to a woman. I believe that adenoids can be avoided very largely by breathing through the nose when the vault is not pushed up. A man or woman with mouth open, with teeth protruding, is liable to infection from the post-nasal region to the tonsils and lung.

DR. CHARLES P. McNABB, of Knoxville:

I want to mention a case of mental deficiency which I suspect is a result of adenoids. There came to my office a week ago a girl, twelve years of age, whose mother made the statement that she was losing her mind. She was brought to me three years ago, at which time she was mentally all right, but suffering from adenoids, and I recommended that the mother take the child to a specialist. I warned her that she would become deaf, or at least her hearing would become impaired, and now for the last two or three months the girl is almost totally deaf. She can only hear the loudest kind of noise, and the vault of the pharynx is filled with adenoid growths. I concluded that the loss of hearing made her appear to be mentally deficient, but after studying the case I am convinced that the girl is suffering from mania. Whether the adenoids had anything to do with this feature of the case, I am not at all prepared to say, but I rather suspect they did have.

DR. E. H. JONES, of Murfreesboro:

I want to say that mouth-breathing and snoring is a purely pathologic condition of the naso-pharynx, and the treatment resolves itself entirely into a surgical procedure for its relief. There is always an hypertrophy of the tonsil or of the adenoids, or of some portion of the nasal passage, and in my opinion there is very little that can be done in that direction

by medicinal measures, but by opening up the nasal passages by surgical procedure we can relieve the condition. That should have first attention, and as quick as possible. Of course, sometimes after we remove the cause, the habit has become established—mouth-breathing—and it does not entirely relieve it, but that is, in my opinion, the procedure necessary to relieve that class of patients.

DR. HILLIARD WOOD, of Nashville:

I want to thank Dr. Vaughan for writing this paper and bringing it before the Association, as it deals with one of the most important subjects that will be discussed at this meeting. Snoring usually means obstructed breathing, and that obstruction is different in infancy, in children and in adults. In adults the obstruction is in the nose, and means either a deformed septum, a hypertrophic rhinitis, or some form of benign tumor or malignant growth, and the cure of that snoring is the cure of the nasal or intranasal condition, and the treatment of it is certainly not medicinal. It is not only surgical, as the doctor has said, but is, if I may use the expression, mechanical. With the snoring child you have a different proposition to deal with, in that the obstruction is in a different locality, and that obstruction, as several of the gentlemen have stated, in children is in the throat. Obstructed breathing in children and in young people up to the age of fifteen is in the throat, and it is the tonsils and adenoids, and it is a question of their removal.

I have been impressed with one fact that has grown on me in the last year or so in regard to obstructed breathing, or in regard to enlarged tonsils in general: you have practically three tonsils—two faucial and one pharyngeal. A fact that has become more and more impressed upon me as time has gone on is this—that whenever you have marked enlargement of any one of these three tonsils you have pathology in all three tonsils. As we all know, the tonsils may not be equally enlarged. Frequently that is true, but if one of them is enlarged much, you get pathology in the other two. That is almost invariably true. I know there are exceptions to that. Therefore, it has been my custom more and more in the last several years particularly, that whenever I remove one tonsil, I remove all three tonsils. It is my general rule to remove all three if I remove any.

With regard to these tonsils not being a cause of bad health, I have been impressed in the opposite direction, and believe that they are the cause of bad health, and I have demonstrated it in many cases in this way: If you remove these tonsils and adenoids the child goes on and gains in flesh. Dr. Vaughan has seen it time and again, showing that there was no constitutional trouble except this local condition, and the removal of the tonsils is the key to the whole problem of relieving snoring and mouth-breathing, including deafness and mental hebetude. It is a notorious fact that these children are dull; they look dull and do not hear well. If you will remove the obstruction, the patient will not snore except in the case suggested by Dr. Jones, where patients con-

tract the habit and are slow to quit it, and he will no longer appear to be mentally dull.

DR. J. W. CARMICHAEL, of Knoxville:

It is not my desire to heap reproach upon the medical profession, but as a medical inspector of the public schools of this city I have been noting from time to time in the different schools these mouth-breathers, and you would be surprised if I were to give you some statistics. If you walk into the school-room, by looking down this row and that row you will find four or five, maybe half a dozen pupils, with the superior maxillae already deformed. A child in one of the schools had even progressed so far as to be so deaf that when brought to the front seat in the school-room it could not hear the teacher behind her desk. Now, somebody is responsible for that, because there is no doubt in the world in my mind but what these children who are diseased to that extent have ailments, and different ailments which call for medical advice, and it is to be regretted that the general practitioners do not recognize these deformities, do not recognize this mouth-breathing, and recommend something to be done. As fast as I find children in the schools with these conditions I am making written recommendations to the parents that they consult their family physicians, or more particularly specialists, and I call the attention of our young men to these conditions, so that they may look out for these things in families whose members they are called upon to treat. Wherever I find children that have enlarged tonsils or adenoids, I am recommending to the parents that they be removed, and you specialists will be greatly rewarded.

DR. VAUGHAN (closing the discussion):

I shall only take time to answer one or two points that were brought out in the discussions.

In regard to thumb-sucking, I think the same principle is involved in the irregular teeth we have been seeing so much, and which is often the cause of that. In thumb-sucking we do not have the tongue pressing against the roof of the mouth, but a broadening of the arch. It rises up, and you have a high-arched palate which alters the formation of the superior maxilla and deviates the nasal septum on one side and is frequently the cause of that.

There must be some cause for the enlarged adenoids and tonsils. Dr. Wood believes they cause bad health, and they do. These patients pick up remarkably when the adenoids or enlarged tonsils have been removed. I think it must be due somewhat to improper hygiene and to malnutrition. It has been my observation that proper clothing and bathing, regulation of the diet, etc., have much to do with the overcoming of the tendency to the development of these conditions. This is true of the adult. Another thing is found—that even though the obstruction has been completely relieved in some people who have acquired the habit of mouth-breathing, it will persist.

OBSTRUCTION OF THE URETER; AN INTERESTING CASE.

M. C. M'GANNON, M.D., NASHVILLE.

THE case that forms the basis of this paper came under my observation early in November, 1907. The patient lived in a neighboring State, and was the wife of an intelligent, well-educated physician.

I was called, with the request that I would come on the first train, prepared to do an abdominal section. Upon my arrival I found the patient—a bright, intellectual woman, without a neurotic symptom—in bed, lying upon her back, with the right leg flexed upon the body, and complaining of an aching pain in the right side, with its maximum intensity in the lower abdomen. The face was flushed, the skin dry, the pulse 120, and the temperature 103. There was some tenderness all over the right side of the abdomen and slight rigidity of the muscles on that side.

Vaginal examination revealed to the palpating fingers a fluctuating mass, the size of an egg, elongated and running outward from the cervix toward the pelvic wall. The mass seemed to encroach upon the vagina and was readily felt between the hands on conjoined manipulation. It was sensitive to pressure.

The patient was 33 years of age, and had enjoyed good health until four years previously, when she began to suffer with pain in the right side. The pain at times was colicky. It did not radiate into the bladder or up to the shoulder.

Following the advice of a competent and experienced surgeon, the abdomen was opened and the right ovary, which was slightly cystic, was removed. Some relief was experienced for a few months. Then the old suffering began, with the attacks of colic occurring at closer intervals, until the pain became persistent and continuous, accompanied by chills and fever, which was the condition when I visited her.

Her menstrual life was a normal one, and she had at no time suffered with marked leucorrhea. She gave no history of bladder

irritability or painful urination, and I was unable to ascertain whether there had been at any time an abnormal condition of the urine.

It was thought by her attending physician that she had a tubal or pelvic abscess. The diagnosis seemed to be between an infection of the appendix vermiciformis, the right fallopian tube, and the right ureter.

The prolonged history of suffering, the colicky pain being right-sided rather than central, rapid pulse and high temperature, with chills, and without much tenderness or muscular rigidity, and the absence of a mass to be felt in the region of the appendix, seemed quite sufficient evidence upon which appendicitis might be eliminated.

Infection in the fallopian tubes, while presenting many of the symptoms present in the case under observation, could be ruled out for the following reasons. The pain was not over the hypogastrium; had existed previous to the abdominal section, when the tube was found normal, and was intermittently colicky. The tenderness and rigidity were not over the hypogastrium, and were less marked than is usual with that disease, when the temperature is high and the pulse fast, and when chills are in evidence.

That the trouble was due to infection of the ureter, with chronic obstruction of its lumen and with consequent dilitation, producing the fluctuating mass which was felt through the vagina, as extending outward from the ureter to the pelvic wall, seemed the logical conclusion. It was fair to assume, also, that the ureter was completely blocked and that the ureter, and probably the kidney pelvis, were dilated and filled with pus.

To prove this, I had the patient sent to the Woman's Hospital of the State of Tennessee, at Nashville, for further examination.

A microscopical examination of the urine showed that it contained some pus and a few red blood cells. By cystoscopic examination of the bladder, the right ureteral opening was seen to be surrounded by a deeply congested zone, for the space of one-fourth of an inch. No urine escaped from the opening of the ureter, and neither a ureteral catheter or sound could be passed up its channel. It was completely closed at its point of entrance into the bladder.

The left ureteral opening was normal. The urine was easily seen to spurt from it.

The diagnosis having thus been satisfactorily confirmed, then came the question, What is the cause of this chronic inflammation? which it was necessary to answer before deciding upon the line of treatment to be adopted.

Ureteritis may result from an extension of the disease, either from the bladder below or the kidney above, and it is quite possible to have the trouble begin primarily in the ureter.

If the soil be made suitable, the infecting microorganisms, whether they reach the ureter through continuity of tissue or through the blood channels, may find a lodging place and produce the inflammation.

Traumatism, renal retention of the urine, calculi, small or large, all have been proven by experimentation and otherwise to end in suppuration when the only source of infection was haemogenous.

The microorganisms most often causing ureteritis are the tubercular bacillus, the bacillus coli communis, and the gonococcus. The two former, more frequently affect the ureter from above, while the gonococcus more often first affect the bladder and then extend to the ureters.

In the case under consideration the bladder was healthy, except about the mouth of the right ureter.

An attempt should be made in every case to ascertain the form of infection before deciding upon the plan of treatment.

This can readily be done, if the ureter be not closed, by passing a ureteral catheter and collecting some of the secretion direct from the inflamed canal and subjecting it to bacterial investigation.

The symptoms of chronic ureteritis are pain and changes in the urine.

The pain may be only a discomfort along the course of the ureter, or it may be referred to the bladder and cause frequency of micturition. Again, if the canal becomes narrow, so that the urine is prevented from escaping into the bladder, colicky pain results. So long as the urine can find its way out of the ureter, the symptoms are not likely to be severe.

Pus in the urine will sooner or later be detected if frequent examinations are made. The urine may at times be quite clear.

It is to be remembered that pus in the urine may result from a diseased condition in any part of the urinary tract. Without a careful cystopic examination, and in many instances without a catheterization of the ureter and an X-ray picture, to eliminate stricture and stone, the diagnosis of uncomplicated ureteritis would necessarily be problematic.

The pathological changes vary very much, depending upon whether the infection is mild or severe. At times the ureteral orifice is occluded and again it is narrowed. It may be contracted or pouting. The channel may be very much dilated in parts, and strictured in others, or it may become completely obliterated.

The treatment: Drainage, free and thorough, should be the chief object in treatment, once the disease has been established. This is the line of treatment in gall-passage infection, that has stood the test of time, and the liver, with its emptying channels, is analogous to the kidney with its tubal passageway to the bladder.

Bozeman first introduced the idea of washing out the ureters and the kidney pelvis for infection of these parts, but he obtained his best results when he opened the bladder through the vagina, splitting the ureteral orifice at the same time, and thus forming drainage.

Many authorities, notably Kelly, advise treating these cases by catheterization and flushing of the ureters.

In the case I am reporting, the ureter was closed at its point of entrance to the bladder, and the opening could not be entered by a fine probe; hence I was obliged to adopt a method which, so far as I know, had not been heretofore described.

On the 9th day of November, 1907, under ether, I raised a vaginal flap, which exposed the ureter in its course from the pelvic wall to the bladder. It was found to be strictured for a distance of three-fourths of an inch from the bladder outward, when it became suddenly dilated to the size of a coil of small intestine. I opened into the dilated part and evacuated about six ounces of pus, after which I split the strictured part of the canal up to and into the bladder. After washing out the ureter, which allowed the easy passage of a No. 12 soft rubber male catheter, up to the kidney, I passed a soft rubber catheter through the urethra into

the bladder and then through the divided strictured part of the ureter up into the dilated portion as far as the pelvic brim. Over this catheter I closed the split ureter, and then replaced the vaginal flap. The catheter was kept in place five days, and through it the ureter was daily flushed with a solution of boric acid. On the sixth day the catheter was withdrawn and each day afterwards a No. 8 male catheter was introduced and the ureter flushed thoroughly. There has been no leakage from the vaginal opening.

Bacterial examination produced a pure culture of colon bacillus. The patient's opsonic index was found to be low to this microorganism, so she was put upon vaccine treatment, the vaccine being made from the culture gotten from the patient. Recovery was prompt.

I had the pleasure of examining the patient on April 10th. The urine flows readily through the new ureteral orifice, and the patient has no suffering.

DISCUSSION OF THE PAPER OF DR. M'GANNON.

DR. GEORGE R. WEST, of Chattanooga :

MR. PRESIDENT : I did not expect to be called upon to open the discussion on this paper. While I make some slight pretensions to pelvic surgery, I do not make any with regard to repairing the ureters. I admire what Dr. McGannon has done in this case. I do not mind taking out the uterus through the vagina or through the abdomen, but I do not like to split, repair, and stitch up tissues along the ureters, find the ureters, and handle them with the ease that some pelvic surgeons say they do. They say it is easy to do, and that the ureters are easy to find, but they are very difficult to find, and it takes a trained touch, a trained eye, and a trained anatomist to know when he finds the ureters. The celebrated Dr. Hodge, in talking to me years ago, said that in removing the ovaries through the vagina, he doubted whether they were always removed or not, because he did not know whether they could be always found or not. That to the educated pelvic surgeon of today sounds very ridiculous, but it shows the development of pelvic work, and Dr. McGannon has gotten a step beyond my ability.

I have listened with a great deal of interest, in the first place, to the diagnosis of this case. If the trouble had been on the left side, how much easier it would have been for the doctor to have made a diagnosis. But on the right side it was confusing with the tube, with the ovary, and with the appendix to make a diagnosis, and it was certainly a wonderful success for him to make such a definite diagnosis in the case. I was astonished last summer, to be told in a surgical clinic that we could tie off the

ureter completely and the kidney would atrophy, and the patient would never have any disturbance. I was told that many pelvic surgeons tied off the ureter and the kidney would stop functioning, would atrophy, and the patient would not have even a stomach ache from it. If that is the case and if there had not been irritation and suppuration and there had been entire occlusion of this ureter, possibly we would not have had the amount of disturbance. I was struck with the fact that the doctor said that there was pus and other symptoms of disturbance in the urine, and yet after making a bladder examination there was no discharge of pus from this ureter which was infected. I am impressed, too, with the ease and skill with which he used the catheter to keep this ureter open as we do the urethra, and especially is it easy in the male urethra, but to keep the mouth of the ureter open by a catheter inserted through the urethra, through the bladder, and then up into the ureter is a crowning climax in pelvic surgery, and I simply wanted to admire what the doctor has done.

DR. B. MERRILL RICKETTS, of Cincinnati, Ohio:

I am sorry that I did not hear all of this paper. I do not wish to discuss it so much as I do the remarks made by one of the gentlemen with reference to ligating the ureter. I have not been able to find any literature on that subject in any medical journal in any language, although I have prepared a review of the literature for publication. I do not recall any paper which endorses the statement that the ligation of the ureter will result in atrophy of the kidney without causing any disturbance. I think any of us would know what the result would be if such a procedure should take place, either intentionally or unintentionally.

So far as surgical operations on the ureter are concerned, they were begun in 1887. Since that time they have been done a number of times. Ureterorrhaphy is one of the most satisfactory operations that we do in surgery of the urinary tract.

The question of introducing a catheter into the ureter is an interesting one, and the success depends very much upon the person introducing it. Galen was one of the first to do this work; Polock and Kelly perfected it. Others have shown conclusively that there is great danger of pyonephrosis resulting from the introduction of a catheter or sound into the ureter. I recall a physician who had a stone in the kidney. He was somewhat disturbed by it: but there was no infection. He had a skia-graph taken showing the stone. He went to New York, the kidney was sounded, infection resulted, necessitating immediate operation.

Drainage with the catheter was undoubtedly necessary in the case that has been described here.

As to the procedure, you have the choice of taking chances without the catheter or with it, and usually the catheter is the safer of the two. I congratulate the doctor on the result. The introduction of the catheter and its retention are not difficult. I see no reason why we should not

be perfectly justified in resorting to the method Dr. McGannon employed for draining the ureter.

DR. JERE L. CROOK, of Jackson:

I would like to ask Dr. McGannon how long after the operation was it before the secretion of the kidney became normal? What was the condition of the kidney at the time of the operation, and if the kidney secreted afterwards? And if so, how long did the pus remain in the urine?

DR. MCGANNON (closing the discussion):

There are many things I might have done in this case. I might have done the operation so commonly performed and referred to by Mr. Rickets. I might have resected this portion and stitched the dilated portion of the ureter to the bladder. That is oftentimes done. I might have gone the other way. I might have gone inside the abdomen, lifted up the ureter, and put it into the top of the bladder. But this was rather a new thought, and I thought it could be done in this way, and that is the reason it was done after that fashion. I did not find much difficulty, after severing the ureter wide open, in covering it, as we do a resection in the male urethra, as described here. There was no difficulty about retaining the catheter, because there were no peristaltic movements in the dilated ureter above. Under ordinary circumstances, there would have been pain from the presence of the catheter in a normal ureter. If you pass a small ureteral catheter up for the purpose of drawing off urine and leaving it there, the patient will complain of pain, because of the violent peristaltic movements. In this case, the ureter was as large as a sausage, was dilated, and there was no difficulty in keeping it up there. The urine contained pus for a week or ten days subsequent to the operation. I think, however, as soon as the vaccine treatment was adopted, the pus speedily disappeared from the urine and we were unable to find any more colon bacilli after the vaccine was adopted for a short time. Somebody said it was surprising to get pus in the urine if the ureter was completely closed, and that a small amount of pus and blood was due to a zone of inflammation about the ureter. If you will remember, I said in my paper that one-quarter of an inch about the mouth of the ureter was deeply injected. There was an inflammatory zone in the bladder, and both blood cells and pus cells I found had come from that and not from the inside of the ureter itself.

As to tying of the ureter, I think it has been definitely proven by experimentation upon animals that it results in the cessation of the functions of the kidney and in atrophy. At first, when the ureter is tied, the kidney becomes congested, and then subsequently, the blood supply is shut off to a large extent and atrophic changes take place in the kidney, the result of a sudden blocking up of the ureter. Where the ureter is slowly blocked, as in this case, dilatation takes place, and hydro-nephrosis, with dilatation of probably the ureter, would have occurred if

it had not been from infection from the colon bacillus, and infection may occur in many ways. We may have infection directly or primarily in the ureter as a result of a favorable soil and the infected material may reach the ureter through the blood channels. That is, hematogenous infection.

What occurred in the case mentioned by Dr. Ricketts is likely to occur in any case in passing an instrument through the ureter. One ought to protect the individual, if possible, against carrying infection with an instrument through a dirty urethra or a dirty bladder. If this is not done, infection is likely to take place. Infection occurs in these cases on account of the soil being made so favorable or suitable for the growth of the microorganisms as the result of the traumatism incident to the passage of the catheter. Hematogenous infection may result in that way, otherwise infection ought not to result.

A word or two more. You will observe, I said in the beginning that the surgeon who operated upon his patient for these symptoms and found a cystic ovary and removed it performed what is known as an exploratory operation. He who explores enters an unknown field—a field of doubt—and I am reminded to make the remark that today pelvic surgeons ought not to make an exploratory operation in a case such as this one was.

Editorial and Business.

All communications relating to the Editorial or Business departments of the JOURNAL, should be sent to the office of the Editor, GEO. H. PRICE,
No. 146 Eighth Avenue, North, Nashville, Tennessee.

THE first number of the JOURNAL has received from the Medical Press favorable comment, and the Editor has also received from professional friends letters of commendation upon the first efforts of the Committee on Publication to give to the profession of Tennessee a Journal. This is encouraging to your Committee, and is duly appreciated, and we desire to express our thanks to those who have been kind enough to make mention of the JOURNAL in their respective publications, and also to those who, by personal letter and word of mouth, have extended to us the offer of help and advice. We trust that, as time goes on and experience is gained, we may be able to give to the profession of Tennessee a Journal worthy of their confidence and support as well as of the profession at large.

We fully realize that there is much to be learned in this field, and we shall be glad indeed to have suggestions from those of experience.

SPECIAL NOTICE TO COUNTY SECRETARIES.

NOT all the members of all the county societies have paid their dues. Which dues are now the subscription to the JOURNAL, hence it is incumbent upon each one of you to see each one of these delinquent members and get them to pay up at once, for unless such is done their names will be taken from the mailing list, and the JOURNAL will cease to go to them.

Some of the secretaries have been active in this good work, and have sent in the names of a number who have paid since the first issue, and it is to be hoped that each one of you will press this matter vigorously. This is now the specific duty of each county secretary, and is of the greatest importance, as it is a prime factor in the success of the JOURNAL.

We would be glad to have from you a report of the work being done by your County Society. In making these reports have them short, sharp, and to the point, and if possible have them type-written, so as to prevent mistakes.

*AMERICAN MEDICAL ASSOCIATION.

THE Fifty-ninth Annual Session of the American Medical Association was held in Chicago, June 2 to 5. For the first time since the St. Paul meeting, in 1901, the Association met in the center of the country. To this fact, as well as to the greatly increased membership in the last few years, is due the large attendance. The registration office opened at 8.30 on Monday morning, and it was apparent almost from the start that all previous records of attendance would be broken. In the four days of the session 6,447 members were registered. Including those Chicago members who did not register, there were at least 500 in attendance whose names do not appear on the registration list. The actual attendance would not fall far short of 7,000. Adding at least 10,000 guests, exhibitors, etc., makes the actual number of persons in attendance about 17,000. The weather was of that well-nigh perfect brand that Chicago can exhibit at times, being bright and clear, yet pleasantly cool and bracing. The general headquarters and registration offices were located in the First Regiment Armory at Sixteenth and Michigan Avenue, where were also found the Sections on Stomatology and Pathology and Physiology, as well as the House of Delegates, Commercial Exhibit, Scientific Exhibit, etc. This building, one of the finest national guard armories in the country, served admirably for convention purposes.

The House of Delegates was called to order on Monday morning at 10.00 by the president, Dr. Joseph D. Bryant, of New York, who, in his presidential address, commended the work of the Council on Pharmacy and Chemistry, as well as that done by Dr. McCormack in educating the public. He also recommended that a standing committee be established to elaborate the ethical principles underlying the practice of medicine, and that general instruction in ethical medicine be made a part of the undergraduate course. He dwelt particularly on the efforts now being made to restrict animal experimentation, and recommended action by the House of Delegates on this subject. Dr. Bryant also called attention to the invitation extended by President Roosevelt to

* These notes were kindly furnished by the Secretary, A. M. A.

him as President of the American Medical Association, to take part in the Conference recently held at Washington on the Conservation of Natural Resources.

The report of the General Secretary showed that the membership of the Association on May 1, 1908, was 31,343, a net gain for the past year of 3,828. The reports received from State Associations regarding the organization of branch associations showed that two States had voted in favor of their establishment, seven had voted against, and the remainder had at the time of the publication of the report taken no action. The appointment of a committee to consider uniform provisions for the regulation of county, State, and American Medical Association membership was recommended.

The report of the Board of Trustees included the customary report from the auditing company, showing that the entire business for the fiscal year of 1907 was \$385,030.89; that the total expenditures of the year had amounted to \$356,222.21, leaving a net revenue for the year of \$28,808.68. Detailed statements of all the various accounts of the Association's business were given, showing the items in each case. The report showed that during 1907, 2,715,293 copies of *The Journal* had been issued, forming a weekly average of 52,217, an increase of 12½ per cent over 1906.

The Committee on Medical Legislation reported that the Army Medical Reorganization Bill and the Carroll-Lazear Pension Bills had become laws during the last session of Congress. The importance of uniform and adequate State legislation on the practice of medicine and the preservation of public health was emphasized, as well as the necessity of careful study of the problems involved. The Committee recommended that pending the completion of the work now being done only those changes in existing laws which are imperatively needed should be attempted by State Associations. The formulation of the Vital Statistics Bill, endorsed by the United States Census Department, the American Public Health Association, the Conference on Uniform State Laws of the American Bar Association, and the American Statistical Association, was reported, and the endorsement of the House of Delegates was asked for this measure. The report of the Chicago Conference on Medical Legislation was also given.

The Council on Medical Education reported that the work of the Council during the past year had been along the following lines:

1. The inspection and classification of medical colleges as (a) acceptable, (b) doubtful, and (c) unsatisfactory.
2. The conducting of an annual conference with the representatives of State Examining Boards and leading educators for the discussion of the important problems of medical education and medical licensure.

3. The collection and compilation of data regarding (a) medical college students and graduates, and (b) regarding results of State license examinations.
4. A thorough investigation of preliminary and medical education in Europe.
5. Working for the advancement of the requirement of preliminary education in the United States to include a year's work in physics, chemistry, biology, and modern languages.
6. Obtaining accurate information regarding high schools and universities in their relation to medical education.

The Board of Public Instruction reported that it had secured a secretary, Dr. R. Max Goepp, of Philadelphia, and that it was considering the establishment of lecture systems and of State Boards of Public Instruction, and intended to publish articles in the magazines and public press for the enlightenment of the public on disease.

The Committee on Ophthalmia Neonatorum advised the enactment of laws in each State regarding the registration of births, and placing the control of midwives in the hands of the Boards of Health; that Health Boards distribute circulars to midwives and mothers on the dangers and prophylaxis of this disease; that State and Local Boards of Health prepare and distribute proper prophylactic solutions with specific directions for their use; that proper records be maintained in all hospitals in which children are born; that periodic reports be made by all physicians to Boards of Health; that concerted effort be made along the lines of public education throughout the country. This report was approved by the Chairmen of the Sections on Ophthalmology, Obstetrics and Diseases of Women and Hygiene and Sanitary Science.

On Tuesday afternoon, at the third meeting of the House, the reports of the Reference Committees were taken up, the Reference Committee on Medical Education approving the work of the Council on Medical Education, and recommending that it be continued. The Reference Committee on Reports of Officers recommended the appointment of a committee of five to consider the elaboration of the Principles of Ethics. Resolutions condemning the legislative efforts to restrict animal experimentation were presented. The action of the Board of Trustees in preparing the second edition of the Directory was approved. The Reference Committee on Legislation and Political Action recommended the approval of the model law for vital statistics, which recommendation was adopted. The resolution presented by Dr. A. T. McCormack, of Kentucky, requesting all State Associations publishing or controlling medical journals to restrict advertisements to such preparations as were approved by the Council on Pharmacy and Chemistry, was adopted. A committee of three to con-

fer with a like committee from the American Pharmaceutical Association in regard to drug reforms was authorized. The candidacy of Dr. C. A. L. Reed, of Cincinnati, for the United States Senate was endorsed.

On Thursday afternoon the annual election took place, with the following results:

President—Dr. William C. Gorgas, Ancon, Panama.

First Vice President—Dr. Thomas Jefferson Murray, Butte, Mont.

Second Vice President—Dr. John A. Hatchett, El Reno, Okla.

Third Vice President—Dr. Thomas A. Woodruff, Chicago, Ill.

Fourth Vice President—Dr. E. N. Hall, Woodburn, Ky.

General Secretary—Dr. George H. Simmons, Chicago, Ill., re-elected.

Treasurer—Dr. Frank Billings, Chicago, Ill., re-elected.

Trustees to serve until 1911—Dr. Wisner R. Townsend, New York; Dr. Philip Mills Jones, San Francisco; Dr. William T. Sarles, Sparta, Wis.

The following nominations were made by the President and confirmed by the House of Delegates:

Committee on Medical Legislation—Dr. Charles Harrington, Boston, Mass., to serve until 1911.

Council on Medical Education—Dr. Victor C. Vaughan, Ann Arbor, Mich., to serve until 1913.

Committee on Transportation and Place of Session—Dr. M. L. Harris, Chicago, Chairman, for three years.

The following were elected honorary members:

Dr. Edward F. Schaefer, Edinburgh, Scotland.

Dr. August Martin, Greifswald, Germany.

Dr. E. Treacher Collins, London, England.

The Committee on Transportation and Place of Session recommended Atlantic City as the next meeting place, which choice was agreed to by the House of Delegates. The Reference Committee on Legislation and Political Action reported, requesting the Committee on Medical Legislation to arrange for a conference with the Committee of One Hundred, the Surgeons-General of the Army, Navy, and Public Health and Marine-Hospital Services with a view to securing co-operation on the establishment of a National Department of Health. After the transaction of some routine business the House adjourned.

The sections were all largely attended, and the programs were of a high order. The session was in every way the most noteworthy of any which has yet been held, and it is anticipated that some years will elapse before the record established will be surpassed.

Journal

of the Tennessee State Medical Association.

PUBLICATION COMMITTEE:

A. B. COOKE.

GEO. H. PRICE, CHAIRMAN.

M. M. CULLOM

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SUBSCRIPTION PRICE, \$2.00 PER YEAR.

THE DISPOSITION OF THE APPENDICEAL STUMP.

BENJAMIN MERRILL RICKETT, M. D., CINCINNATI.

SO MUCH has been said concerning the stump in appendectomy that a few remarks at this time may suffice to call attention to facts recently gleaned from sixty-four American surgeons, who give in detail their methods. The number of appendectomies which these surgeons represent is about eighty thousand. From this great number are drawn conclusions which must be more or less convincing.

That safety has been sacrificed for a beautiful toilet there can be no doubt.

The question for your consideration is, how should the stump be treated?-

The methods in vogue are: Simple Ligature, Exirpation, Invagination. Inversion, Bury, Imbed, and Electro-Angiotribe, Cautery.

A clear understanding of the definition of each will settle the question with the careful observer.

This great discrepancy in technique of masters, like the thousand remedies for a given disease, must necessarily indicate an unsettled state of affairs. It is this disagreement that has prompted the following questions to be sent to one hundred and forty American surgeons for their consideration:

1. How do you treat the stump in appendectomy?
2. What material do you use for suture or ligature of stump?
3. Do you transfix ligature?

4. Do you ligate or suture all stumps?
5. Have you had fatal hemorrhage from appendicular artery?
6. Approximately, how many operations in acute cases?
7. How many in chronic cases?
8. What mortality in each?

To these questions sixty-four replies were received, giving the following information concerning the number of operations and technique with which they were done.

An effort has been made to retain the exact wording in each report; some reports explain in detail each individual method, so it was with more or less difficulty that words were substituted for paragraphs. It is hoped that the total sum of knowledge contained in them may compensate for their perusal.

The advantages of one over the other will not then be difficult to understand.

The disadvantages of all but simple ligature will stand out in bold relief.

The escape of feces and blood into the peritoneal cavity, or blood into the alimentary tract are frequent in all methods other than simple ligature; indeed, all but one of the forty cases of this character herein mentioned have been where simple ligature was *not* applied.

That the results of this investigation may be better understood, the following deductions are given:

Total number of reports.....	64
Number stating mortality in acute.....	26
Number stating mortality in acute and chronic.....	8
Number stating acute only.....	18
Number not stated.....	38
Average per cent mortality for acute stated.....	7.50
Average per cent mortality for chronic stated.....	1.75
Reporters who state mortality.....	40

NUMBER OF OPERATIONS BY SIXTY-FOUR OPERATORS.

34	Stated
26	Not Stated
4.....	Combined both acute and chronic
34 report 21,826 operations for chronic appendicitis.	
34 report 18,040 operations for acute appendicitis.	
26 report 16,690 operations for chronic appendicitis.	
26 report 13,795 operations for acute appendicitis.	
4 report 9,900 operations for acute and chronic combined appendicitis.	
Total <u>80,251</u>	

NOTE—The number of operations for the twenty-six not stated is estimated on the number done by the thirty-four stated.

Eighty per cent of the total number of operations have been done by the purse-string methods.

The number of acute and chronic cases herein reported are about equal in number.

NUMBER OF OPERATORS AND TECHNIQUE FOLLOWED.

Ligated	10
Invaginated	16
Inverted	17
Buried	16
Imbedded	4
Extrirpated	1
Crushed	19
Used actual cautery.....	9
Used carbolic acid.....	12
Used carbolic acid and alcohol.....	7
Always inverts	1
Amputate even with cecum.....	3
Remove mucosa	6

NUMBER OF OPERATORS WHO USE SILK OR LINEN.

Use ligature	15
Use purse-string	21
Use double purse-string	2
Use double ligature	1
Suture	3
Transfixes ligature	5
Don't transfix ligature	19
Use double suture	0

NUMBER OF OPERATORS WHO USE CAT-GUT.

Use ligature	28
Use purse-string	11
Use double purse-string	0
Use double ligature	0
Use suture	5
Transfix ligature	3
Don't transfix ligature	24
Use double suture	2

NUMBER OF OPERATORS WHO ARE MISCELLANEOUS.

Employ silk mattress	2
Employ linen or catgut	2
Ligates or sutures all stumps with linen or catgut.....	1
Ligate or suture all vessels.....	2

Buries with suture	1
Don't use ligature to stump	2
Never ligates stump	1
Ligate or suture all stumps.....	40
Don't ligate or suture all stumps.....	8

These figures, while necessarily more or less uncertain, will answer, in a general way, some of the questions that might arise. It is evident that the words invaginate, invert, bury and imbed have been substituted many times for each other—carelessly, no doubt, in many instances, while in others it has been done in the absence of their proper meaning.

Catgut seems to be more frequently employed for ligature to the stump, while linen or silk is applied for purse-string, there being eleven of the former to twenty-one of the latter. In no instance is catgut mentioned for double ligature or purse-string, and only two of double linen purse-string and one of double linen ligature. Their use as a suture seems about equal in frequency, as does also transfixing and not transfixing ligatures.

There are forty-nine who ligate or suture all stumps, eight who do not, and seven not stated. Two ligate or suture all vessels separately, and two who never use ligature on stump.

The following letter was sent to all available persons who were known to have had one or more cases of hemorrhage, but few having been returned, the appended table is more or less incomplete.

JULY 27, 1907.

DEAR DOCTOR:

Will you please answer the following questions concerning your cases of hemorrhage from appendicular stump. I am collecting all I can find:

Date; sex; age; acute or chronic; interval; clamp; cautery; clamp and cautery, actual cautery; caustic; ligature, number of ligatures; material; method; hemorrhage into bowel, in peritoneal cavity; re-operation, yes or no; method; journal reference; recovery; death; autopsy; remarks.

TABLE SHOWING FATAL AND NON-FATAL HEMORRHAGES DUE TO
IMPERFECT LIGATURE OR SUTURE.

Many other cases of hemorrhage have become known, but circumstances are such that no detailed account of them can be made at this time.

Hemorrhages into bowel	27
Hemorrhages into peritoneal cavity.....	4
Hemorrhage behind the peritoneum	1
Feces into peritoneal cavity	3
Not stated	5
Reoperation, 13; deaths	3
Not operated upon	22
Not stated	5
Recovered without reoperation	12
Deaths without operation	8
Autopsy	5
Total number of deaths	11
Number of cases in which catgut ligature was applied to stump which had been invaginated with catgut purse- string	9
Number of catgut ligatures to such stump.....	4
Not stated	3
Linen ligature to stump which had been invaginated with linen purse-string	1
No linen ligature to such a stump.....	11
Linen not stated	5
Neither catgut or linen ligature to stump.....	7
Number of surgeons who state kind of suture or ligature..	3
Number of purse-string suture	32
Number of bipolar suture	2
Not stated	6
Number of single catgut ligature to stump without invagi- nation or purse-string	1
Number of catgut purse-string.....	16
Number of linen purse-string.....	16
Not stated	7
Double catgut ligature to stump.....	11
Double linen ligature to stump.....	1
Three catgut ligatures to stump.....	1
Single catgut ligature to stump.....	1
Linen and silk not stated.....	4
Linen and catgut	1

CONCLUSIONS.

1. Stump should be as short as possible.
2. Any one of the purse-string methods is the more dangerous.
3. Ligation for the firm appendix and extirpation for the soft ones are the better methods.
4. Hemorrhage from the appendiceal vessels is a common accident, and one that can be avoided.

5. The escape of feces into the peritoneal cavity is also frequent.
6. Infection from stump occurs rarely.
7. Adhesions resulting from a denuded stump, or meso-colon resulting from ligature, are of little consequence.
8. Ligature around the stump without mucosa between it and a stenosed Gerlach valve will not cause pain, otherwise it may do so.
9. A more definite classification of the pathological appendix and its results should be more generally accepted.
10. The mortality in cases with vomiting, ileus, obstruction, peritonitis and distension is much higher than these reports (with three or four exceptions) would indicate. It is probably as great as 90 per cent, if not more.
11. It is difficult to understand why so few such cases have been reported, and still more difficult to understand why they are absent in the work of one and numerous in that of the other.
12. The average per cent of mortality for acute stated (7.50) and the average per cent for chronic stated (1.75) is probably a fair estimate for the work during the last five years.
13. Linen and silk ligature has more advantages than catgut, without the disadvantages, and should therefore be given preference.
14. Ligatures of any material or character should be transfixated in any tissue, especially within the peritoneal cavity.
15. Stumps of living tissue should be sutured or ligated with transfixion, especially if there are canals of any character within that stump.

Several replies have been received since the conclusion of this work, so that only passing remarks can be made. Among them are Drs. Floyd McRae, and Joseph Bloodgood, each of whom use the catgut purse-tring method.

McRae gives 458 with 16 deaths. Of this number, 41 cases were beginning general peritonitis with 7 deaths (17 per cent). Fifty cases of acute abscess (delayed) with 8 deaths (16 per cent), and 367 chronics without a death. His classification of pathological conditions is nearer that herein given than any of the other sixty-four reports. He has never had a case of hemorrhage, while Bloodgood reports one retro-peritoneal and Basham one into the cecum.

PRACTICAL DEDUCTIONS IN THE DIAGNOSIS AND TREATMENT OF APPENDICEAL INFEC- TIONS.

WILLIAM D. HAGGARD, M. D., NASHVILLE.

WHEN the older anatomists named the belly the abdomen, from *abdo* (I conceal), they little dreamed that the most insignificant organ of that cavity would cause the most frequent of all the surgical diseases of the entire body, and that its mysteries would lie concealed until the last decennium of the nineteenth century. It remained for Fitz to identify and describe appendicitis in 1886. He afterwards said, "It is a disease that should be treated with knife in hand." Mixter said he thought it was more safely treated with the appendix in hand.

The internist and the surgeon have bent their combined energies to unravelling the tangled wharp of a misguided pathologic concept and rewoven an harmonious clinical fabric based upon known morbid changes.

The most treacherous of diseases, its death rate should be almost infinitesimal, and yet it produces one death in fifty, based on the 8,043 deaths, from all causes, occurring in the Boston City Hospital from 1891 to 1901, and may be taken as the average death-rate for America, according to Osler. I feel sure that the mortality has been greatly reduced in the last decennium. In Nashville in 1907 there were 1,679 deaths, excluding those due to accidental and external causes. Seventeen were due to appendicitis. Seven are listed as simple peritonitis (non-puerperal). It is safe to assume that at least three of these cases originated in the appendix, making twenty, or one in eighty-three. It occupies the surgeon almost daily; occasioning from one-third to one-fourth of his entire work.

The writer performed his first operation for appendicitis by lamp-light in a negro hut, November 14, 1893. Since that time I have observed, approximately speaking, about four hundred cases. While I have reported single, illustrative, and groups of cases, and have participated in many of the none too gentle discussions which have rent our medical societies, it has fallen to your lot to be inflicted with the first paper I have written on the subject, save one in 1897 upon "The Technique and Disposal of the Stump

in Appendicitis." What I shall say, therefore, in reference to the diagnosis and treatment will be in the nature of practical deductions from personal observations, as well as from a scrutinizing study of the methods and writings of others.

We are frequently asked why there are so many of these cases nowadays; what became of them years ago, and what they were called.

Robert Morris said: "If a torch were placed on the tomb of every man dying of unrecognized appendicitis, the world would be a bonfire."

There is, of course, no real increase. They are simply recognized in their true light now, instead of being called by the various names of conditions which they are supposed to simulate, such as gastritis, inflammation of the bowels, peritonitis, "locked bowels," and perityphlitis when an inflammatory exudate encapsulating the appendix existed.

The mortality was about the same, but chargeable to the complications and terminal changes, peritonitis, intestinal obstruction, etc. Of course, the claim is not made that by operating in many of the mild or chronic cases that death would necessarily have supervened from appendicitis.

The fact is, however, that out of all the mild and recurrent cases submitted to operation, the proportion of deaths is vastly less than if they were managed by any other method.

The mortality of the acute cases, medically treated, is variously estimated at from 10 to 20 per cent. It is pretty generally known that the death-rate under the best surgical management is not much over 2 per cent.

Murphy says that where a surgeon is having more than three or four deaths in a hundred cases of appendicitis, he is either receiving his patronage from incompetent and procrastinating medical men, or he is doing too much manipulating in the peritoneal cavity under unfavorable pathological conditions.

While the operator is very jealous of his statistics, and speaks with pardonable pride of his last series of so many cases without a death, it must be remembered that the credit is not alone his, but the greatest and most essential factor is the diagnostic acumen of the medical men whose patients were submitted to operation while the disease was in its primary stages.

The clinicians are wont to say, with gratification, that, "I have had six or a dozen cases of appendicitis operated on. They all got well but one, and I saw that one the third day in consultation."

I have operated upon three acute patients in a week for one consultant successfully, and recently the same number of cases were sent to the hospital by another practitioner in a single week. I operated upon two, and the third was operated upon by a colleague during my absence from the city. One was an abscess case, one an interval and one a gangrenous perforation; all recovered.

It is not uncommon to hear a surgeon say nowadays:

"I have never lost an appendix case occurring in the practice of Dr. So-and-So. They all come early."

In contrast to this, I can remember, five or ten years ago, the trepidation with which I received a message to go out of town to operate for this disease. I well knew it was likely to be a fourth or fifth day case, with the projectile black vomit of peritonitis, the enormously distended, motionless abdomen of paresis, with the rapid, thready pulse of prolonged toxemia. (Operation had not been advised at first, as the patient seemed to be doing fairly well; or, if the operation was urged, the family or patient objected, or the life was jeopardized until some relative could arrive from a distance.) The mortality was very great in this class of cases, and, indeed, practically the only cases that were submitted to operation were those whose desperate condition betokened certain death without operation. Is it a wonder that they died with the operation? Not necessarily as a result of it, but in spite of it.

Is it any wonder that with such results that physicians hesitated to advise operation, and patients were prone to delay it until they were almost moribund? (All of this was due to the erroneous deduction from the fact that none but advanced and desperate cases were submitted to operation, with its resulting high death-rate, which was charged to surgery, and that most of the mild cases which were not operated on, were apparently cured medically.)

During this evolutionary period, a homeopathic physician, well-versed in everything except pathology, naively said: "A surgical operation is the only dangerous complication of appendicitis."

There were thirteen operations by Nashville surgeons in a nearby town, with thirteen deaths. We now know that operation

in the first twenty-four hours would have saved, at least, a dozen, and possibly the baker's dozen. This circumstance was honestly misinterpreted and used as an argument against operation. Of course, this is ancient history now, so great has been our progress, although it occurred less than ten years ago.

(I insist that there has been no more brilliant or beneficent achievement in the last quarter of a century than the evolution of the clinical recognition and surgical mastery of this murderous disease.)

Frank, well-marked cases in young adults, beginning suddenly with severe cramp-like colicky pain in the epigastrium or around the umbilicus, associated with nausea or vomiting and followed by right-sided tenderness, most marked at McBurney's point, and rectus rigidity, with right thigh drawn up, with increased pulse rate and an elevation of temperature are classical and unmistakable.

I made my early diagnosis, "on suspicion," and by paying heed to the three cardinal symptoms accentuated by Deaver—pain, tenderness, and rigidity—whether associated or not with confirmatory symptoms. The first diagnostic advance is to realize that abdominal colic, especially in otherwise healthy young people, should be observed with solicitude and alertness. It usually means pathology, and is most likely to be appendix. The next thing is, if the pain is continued, to analyze carefully the syndrome and make the diagnosis from the orderly array of symptoms, instead of trying to demonstrate a tumor or palpate the appendix. The former is never present in the early stages, although it may be apparently, and the latter is untrustworthy, unnecessary, and, if rudely or frequently attempted, may rupture an already over-distended appendix, or express the deadly contents through the beginning perforation which nature may be attempting to protect by an adhesion of adjacent viscera or by enfolding it with the omentum, as one would wrap a child on fire in a blanket. Many a supposedly palpated appendix is the sensation of rolling under the fingers the edges of the rectus gives as the hand is drawn toward the anterior spine.

The most attenuated appendix I ever removed apparently rolled under my finger like a pencil.

In many of the interval cases, where the history is regular and

convincing, and especially if one or more of the attacks were observed by a competent medical man, it is not only unnecessary, but frequently impossible to palpate the appendix, except where chronically swollen. It is oftentimes the result of a robust imagination and a feeling of infallibility in lieu of the humility which should plenteously endue the diagnostician.

The apparent tumor, seemingly the size of one's thumb, in the early stages is the spasmodic contraction of the abdominal wall immediately over the appendix as pointed out by Murphy, and quite disappears when the patient is under ether. The appendix may really be found behind the caecum.

The tumefaction occurring about the third day, or shortly thereafter, is usually due to the inflammatory exudate thrown about a perforation or leaking appendix. The largest amount of protective lymph exudate is excited by the colon bacillus. I have seen the entire organ encased in a coat of grayish lymph that stripped off during removal like an umbrella cover. Infections by streptococcus are more dangerous, because they are prone to get into the lymph streams and kill the patient by toxemia. They do not excite adhesive action, and tumors in their presence are smaller.

On the fifth to seventh day the indurated area can easily be mapped out by piano-note percussion with the fingers of one hand, when the parietes are too tender for the plexor. The tumefaction usually occupies the iliac fossa, but I have opened these abscesses in the mid-line on the left side, through the loin, the vagina in women, and seen them open spontaneously through the rectum or bladder. Fluctuation can infrequently be demonstrated unless it is fifteen or twenty days old and point is apparent. With the stethoscope the intestinal sounds are absent over the tumor and "still" immediately around it. Dullness is present on deep percussion if tolerable; and (superficially) if fortunately the abscess cavity is adherent to the abdominal wall.

Aspiration is needless in this event, and at all times dangerous. Whenever an attack which subsides leaves an appreciable induration, it is almost sure to recur.

Rigidity is the most valuable physical sign in the early stages, next to tenderness. It is elicited by light palpation, and deep pressure will provoke contraction and mar the delicacy of the sign, which is of great value when contrasted to the softness and pliabil-

ity of the opposite rectus and oblique. The patient can locate "the tender point" with the gentlest touch of the finger. When rigidity is present on successive examination it clinches the suspicion of appendicitis—when relaxation returns resolution is occurring—when it is succeeded by distention and tympany, peritonitis has ensued.

Murphy, with his precise and searching clinical acumen, calls attention to the order of appearance of the symptoms. First, pain; second, nausea or vomiting; third, tenderness, and, fourth, temperature. He insists on the latter being present in the early stages, even though slight, to complete the diagnosis. It may not reach 100, although sometimes registers 103 degrees and higher. Later it is an undependable symptom, and if low should not be allowed to deceive us. A sudden drop is significant of gangrene or peritonitis, especially when coupled with an increase in pulse rate. A chill is most ominous, and often means gangrene. The pulse is the most trustworthy guide. If it is on the increase after twelve hours it is unfavorable.

Pain is a very variable, although essentially constant symptom. It may be so mild as to be regarded by the patient as an indigestion, so-called biliousness, "cold," or ordinary colic. It may require no treatment, or even, if severe, be treated by "Painkillers" or other opiates, without calling a physician.

It is not always sharp and cramp-like, but may be dull or aching, although increased on moving or coughing. If it subsides suddenly it may mean a discharge of the septic contents back into the caecum, followed by recovery, but it may also mean rupture with its noxious products spilled in the peritoneum, followed by death. If the pain returns it indicates beginning peritonitis. The initial nausea and emesis is reflex from over-distension. If it persists longer than the second day or reappears on the third day, it argues local or generalized peritonitis. In cases with fatal termination it is continuous, often projectile, black and gulped up painlessly in incredible quantities.

The extreme value of tenderness is fully expressed by Fowler when he said, "Tenderness is of almost as pathognomonic value in appendicitis as rusty sputum is in pneumonia."

Next to the examination of the abdomen the rectal examination should not be omitted. If a patient is seen after the first week of

the disease and has frequent tenesmus with the passage of large quantities of odorless mucus and the sphincter is seen to be relaxed, a digital examination will reveal a large mass bulging toward the rectum. It will frequently rupture and discharge and should be left alone for the time being and given an opportunity for spontaneous relief. If the abscess also points to Poupart's ligament and is opened the necrosis into the rectum may still cause a perforation into that viscus.

In women a vaginal examination should always be made to exclude adnexal disease. In addition to the history of infection at labor, abortion or gonorrhoea a tender and sometimes broad-like mass on one or both sides of the uterus and often in Douglas space, fixing the uterus will be found.

Moving of the cervix from side to side will always elicit pain if there is tubal inflammation, although it may be so high up or in so fleshy a woman as to defy a more accurate palpation.

There are a dozen things for which appendicitis may be mistaken, but the most important, I think, are perforated gastric or duodenal ulcer, intestinal obstruction, inflammation of the gall bladder, renal colic or Dietl's crisis, pelvic inflammation in women, typhoid fever, and acute pancreatitis.

In perforated gastric ulcer the history of pain after eating, hematemesis, preceding a sudden severe epigastric pain followed by vomiting, tenderness, immovable upper abdomen, collapse and consecutive peritonitis, in lieu of tenderness below the naval and greatest in the lower right quadrant will make the distinction. The distinction is without a difference, except in the choice of the site for the incision. Indeed, out of fifty-one cases collected by Weir of perforating duodenal ulcer, nineteen were operated for appendicitis, because the fluid is directed to the outer side of the ascending colon by the hillock of the hepatic flexure and localizes itself in the right iliac fossa.

In consultations I have found more erroneous diagnosis of intestinal obstruction than anything else. On the fourth and fifth day, with progressive symptoms, pain, vomiting, distention, and inability to move the bowels after repeated efforts, naturally distract the attention from the original development and makes one question the diagnosis. If a survey of the case does not serve to discriminate, there is one symptom that will, and that is

the invariable absence of temperature in the beginning of intestinal obstruction, and its almost equally certain presence in all cases of appendicitis of sufficient virulence to cause intestinal paresis due to toxemia. Stercoraceous vomit will settle the diagnosis if present and bloody mucous stools of intussusception will identify it in children. The absence of temperature in renal colic, even though the stone stops in the ureter at the site of the appendix, would serve to exclude appendicitis, provided a microscopic examination of the urine showed blood cells and tailed kidney epithelium.

Murphy decided, with knife in hand, not to operate on a girl who was prepared for operation, because the father, a doctor, insisted there had been no temperature, and while palpating the flank, an acutely dislocated kidney, with twisted pedicle sprang back into place. Deitls' crisis would behave the same way.

The pain of gall-stone colic "goes through to the back," under the right shoulder blade, and when relieved a feeling as of the passage of gas in the upper abdomen is described. The gall-bladder may be palpated as a pear-shaped tumor movable with respiration.

If a gall-stone history is given and a patient has distended and tender belly after severe pain and shock, rupture of the gall bladder should be suspected. In such a case I removed a quantity of blood filling the lower abdomen that was supposed to be an appendiceal abscess, and five gall-stones from the vesico-rectal pouch, three weeks after the attack, with recovery.

Acute cholecystitis occupies a higher position, and if not superficially sensitive will always divulge its tenderness if the fingers are pressed deeply under the right costal arch during respiration and the tender gall bladder is forced against them by the diaphragm.

I made an iliac incision in a robust man who was recovering from a first attack of pain, temperature and tenderness nearer McBurney's point than the ninth rib, only to find the appendix normal, but the gall bladder sprinkled with a few adhesions, and containing stones, which were removed through another incision. The diagnosis had been concurred in by one of the most competent and careful diagnosticians of my acquaintance. The man developed intractable hiccough and vomiting, and died on the third

day. I attributed it to the recent infection, although there was no soiling. An "interval" operation on gall bladder should have been successful.

Fitz's law, which is as follows, should be distinguished by acute pancreatitis: "Acute pancreatitis is to be suspected when a previously healthy person or sufferer from occasional attacks of indigestion, is suddenly seized with violent pain in the epigastrum, followed by vomiting and collapse, and in the course of twenty-four hours by a circumscribed epigastric swelling, tympanitic or resistant, with slight rise of temperature."

The vomiting temperate, iliac tenderness, or the swollen ileum or mesenteric glands of typhoid fever may simulate appendicitis, but the procedure, absence of initial pain, and later Widal's reaction, will correct the diagnosis.

My second successful operation for perforation in typhoid fever occurred in a boy in whom appendicitis had been diagnosed and about the tenth day an aggravation of tenderness, with tumefaction, decided us on operation, which disclosed two perforations in the ileum, partially walled in, which were closed, with final recovery after a severe parotitis and an operation for secondary fecal fistula.—Tanksley.

In children, appendix infections are especially grave. It may be inaugurated by diarrhea and enteritis be declared. Rectal examination is important, as the appendix is often low down. A chest examination should never be neglected, as pneumonia sometimes begins with abdominal tenderness, distention and rigidity when the lower lobes are involved and there is diaphragmatic pleurisy.

Diagnosis of chronic cases can easily be made from the story of previous acute attacks, with induration, tenderness, discomfort and recurrences. It not only occasions physical distress and danger, but much mental disquietude.

There are many intestinal, digestive and nutritive derangements that occur from flexions, torsions, displacements, strictures with retention, and adhesions that may also be the physical basis for acute infection.

It is well to be wary of the mental form of appendicitis which occurs in the neurotics, and also of a more or less continuous pain in that region that is sometimes complained of by the neurast-

thenics, whose distraught nerves may mimic all disease, and really has one that is the will-o-the-wisp of therapeutics.

General peritonitis and septicemia is the greatest danger of appendicitis, but the following complications have also been observed:

Thrombo-phlebitis, pylephlebitis, hepatic abscessal pulmonary embolism; broncho-pneumonia; empyema; purulent pericarditis; arotitis; erosion of iliac vein with fatal hemorrhage; fistulae through parietes bladder or bowel, or obturator foramen; sub-phrenic abscess, bursting into the lung and discharging through the mouth.

When any one of these catastrophes occurs, and in every man who dies, there was a time when it could have been prevented.

Therefore, to my mind, the safest, surest, and best treatment for appendicitis is the prompt removal of the organ within the first twenty-four or forty-eight hours of the disease, if a competent surgeon is at hand. The mortality is less than two per cent, which cannot be equalled by any other plan of management. The Ochsner treatment has been greatly misunderstood when it is supposed to be a medical curative treatment avoiding operation. The first statement he makes is that all cases in their early stages should be submitted to operation. The other elaborate plan of treatment which he has devised is for the cases which, unfortunately, have not had operation during the golden opportunity. The Ochsner method intends to assist nature to wall off the abscess, if infection has occurred outside of the appendix. Nature often does this unaided when she conquers the infection by a limiting wall of adhesions-abscess.

Under these circumstances nature takes the appetite away from the patients, causes them to vomit and empty the stomach, makes the intestines lie motionless and distends them in order to make an effective barrier. Ochsner simply follows this idea, and withholds all food and purgatives which will cause peristalsis and instead of encapsulating the pus would tend to scatter it throughout the peritoneum. He nourishes the patient with an ounce of panopeptone or liquid peptonoids in three ounces of salt solution, per rectum every three hours, giving nothing by mouth. The stomach is washed in the beginning, and when vomiting occurs and the pain is controlled by ice and a little morphia, if necessary.

This is only applicable to the bad third, fourth and fifth-day cases that formerly yielded a large mortality when operated upon. It is intended to transfer some of these patients from the death class from distributed diffuse peritonitis into walled-off abscess cases, which can be opened safely on the tenth or twelfth day. If the entire process undergoes resolution the appendix is removed as soon as the condition is quiescent. In this way I have treated a number of cases which, if operated upon in their desperate condition, would not have gotten well. Some men misunderstand the essential features, fail to operate in the early and safe stages of the disease, while the infection is still confined to the appendix, or even when perforation has first occurred, and when the patient gets bad off, on the fourth or fifth day, they think it necessary to operate. Of course, the patient ought to be operated theoretically to rid him of his disease, but it illustrates the adage of doing "the darndest rightest thing to the darndest wrongest time." Many of these patients will be tided over by the anti-peristalsis treatment practiced for time immemorial by nature and recognized and supplemented by Ochsner. If, however, the patient has had violent purgation and food from the beginning, he is very likely to have dissemination of his infection, and those cases are really safer with the operation, because there are very slight chances then to have the infection walled off. Where the attack is fulminating and the gravity of the symptoms and signs show a diffuse generalized peritonitis to be developing, a ten or fifteen-minute operation, with gentle but rapid removal of the perforated appendix by simple ligation with catgut, with irrigation, placing a glass or rubber drain into the bottom of the pelvis through a stab-wound over the symphysis, and sitting the patient up in Fowler's position, will often save desperate cases. Murphy has cured forty out of forty-one cases of general septic peritonitis by these means. Relieving the pus that is under tension is the prime factor, and the greatest treatment for the toxemia in the acute hour of sepsis is the blood-washing by introducing a pint of salt solution into the rectum every hour for ten or twenty hours, through a glass douche nozzle from a fountain syringe, elevated only three inches from the anus. It will be retained and absorbed if the water is allowed to flow gently, and if the pressure is too great let it flow back into the bag, and then into the rectum again, in-

stead of into the bed. Strychnine should be used sparingly. In producing shock in animals for laboratory study Crile obtains it now by strychnine in doses not large enough to cause twitching, instead of by crushing its paw, as formerly. Sulphate of spartein has been found to be the best heart stimulant, when temporarily needed, if used in 2-gr. doses hypodermatically. To administer strychnine or stimulant in shock is like "beating a dying horse." It may induce a desperate effort, but it hastens the end.

I will not go into the technique of the operation, as it is well understood, although it differs in minor degrees among various operators. To summarize, I would, therefore, say:

I. That the treatment of appendicitis should be surgical operation in all well-marked cases, as soon as the diagnosis is made —within the first twenty-four or forty-eight hours, if possible.

II. Immediate operation in cases which have apparently been doing well, but suddenly have chill or a drop in temperature, with rise of pulse. If vomiting returns after having stopped, or if inflammatory pain reappears after the original seizure has abated, or from any cause perforation or gangrene is suspected.

III. Moderately severe cases, seen on the third, fourth or fifth day, who have not had the benefit of early operation, and especially if there is any special contraindication to operation, are given their best chances by the Ochsner method.

IV. Cases seen when the process is distinctly abating are treated in the above manner, and operation deferred until the attack has completely subsided.

V. Cases with well-defined abscesses seen on or about the end of the first week, can often be watched a few days if there is any opportunity of the abscess becoming adherent to the abdominal wall. If this occurs, adhesions are quite competent at the end of the tenth day, and evacuation should be practiced, but the appendix left alone, unless it is easily seen and very accessible in the abscess cavity.

VI. In general peritonitis a short operation, with quick removal of the appendix, no irrigation, a large glass tube in the pelvis above the pubes, the patient in Fowler's position, and the "blood-washing" continuous enema of salt solution, is the best treatment. Where the abscess is not adherent to the abdominal

VII. Cases after one attack are safer with operation in the interval than to wait for another attack.

VIII. If the interval has been allowed to elapse without operation and the second or third attack should become inaugurated, operation in the first few hours of the attack, while the infection is still confined within the lumen of the appendix, are about as safely treated with immediate operations as with operation in the interval; moreover, all of the dangerous possibilities of that attack are cut short.

wall, the entire field should be walled-off with gauze before opening and sponging it dry. Irrigation should not be used.

Insurance companies are unwilling to risk any part of their enormous surplus on a man who has had a distinct attack of appendicitis within the preceding two or three years, unless it has been removed. If he has had more than one attack some companies will not accept him at all. The patient ought not to be willing to risk the only life he has, when it can be so surely safeguarded by an interval operation that requires only twelve to twenty minutes to perform, and he leaves the hospital in from seven to ten days.

The Mayos did 702 operations in 1907 for chronic appendicitis, without a death. Out of 433 acute and suppurative cases there were five deaths; five out of six cases of diffuse peritonitis recovered.

I will insist that there has been no more brilliant or beneficent achievement in the last quarter of a century than the evolution of the clinical recognition and surgical mastery of this murderous disease.

COLIC.

W. J. BREEDING, M. D., RAVENSCROFT.

THIS subject is so vast in its possibilities, and so intricate in its solution, that I can only hope to touch upon its most salient, practical phases.

My chief object in offering a paper on this commonplace subject is to emphasize the importance of a careful examination, and, if

possible, a clean-cut diagnosis, before any therapeutic endeavor is attempted, and to insist upon the dangers of delay in the recognition of the significance of paroxysmal abdominal pain.

Although the abdominal cavity does not contain either of the tripods of life, yet from a surgical, as well as a medical, standpoint, it is one of the most important regions in our anatomy.

Shakespeare pays high tribute to the importance of the abdominal organs in the following beautiful allegory:

"There was a time when all the body's members rebelled against the belly; thus accused it:

"That only like a gulf it did remain, i' the midst o' the body; idle and inactive, still cuppording the viand, never bearing like labor like the rest; when the other instruments did see, and hear, devise, instruct, walk, feel and mutually participate; did minister unto the appetite, and affections common of the whole body."

"The belly gravely and deliberately answered thus:

"'True is it, my incorporate friends,' quoth he, 'that I receive the general food at first, which you do live upon; and fit it is, because I am the storehouse and the shop of the whole body. But if you do remember, I send it through the rivers of your blood, even to the court—the heart; the senate—brain; and through the ranks and offices of man. The strongest nerves and small inferior veins from me receive that natural competency whereby they live.'"

True it is, gentlemen, that the abdomen, with all of its important contents, has, it seems, been but poorly protected by nature. We find the brain admirably enclosed in a bony case, the heart and lungs fenced about to ward off invaders, but the life-sustaining abdominal organs are left loosely enveloped by skin, muscle, fascea and fat. Being easily invaded it must bear the burden of an indiscriminate appetite, injudicious medication, and the reckless use of the surgeon's knife.

Is it to be wondered at when we hear its cries for relief? And is it not a fact that these organs "do suffer much of many physicians?"

To the laity a pain in the abdomen usually means colic. The term "colic" conveys to the minds of most individuals an idea of a painful, transient, trivial malady, free in any way from dangerous consequences and sequellae.

To the trained medical man colic may mean one of at least

a dozen pathological conditions within the abdomen that might prove fatal.

"The palm of one hand," says Dr. Mayo, "may cover a serious lesson of the stomach's bile passages, liver, duodenum or pancreas, and any one of this group may start a pathological process that may extend to any one of the others."

The fact that the renal colic may produce pain in the testicle; hepatic colic, pain in the right shoulder blade; appendical colic, pain in left side of abdomen or right groin; uterine colic, pain in thighs or back; plurisy and pneumonia colicky pain in abdomen, and Potts disease pain in the epigastrium, sometimes serves to confuse the diagnosis.

The term "colic" has been derived from a Greek word meaning colon, because the ancients believed that all colics originated in or near the colon.

It has been defined as a paroxysmal pain in the abdomen, due to spasm or obstruction of some of the hollow viscera.

In view of the fact that a quick diagnosis is necessary in all forms of colic, I have adopted the following as a practical classification :

1. Colic from irritants.
2. Colic from inflammatory conditions.
3. Colic from perforations.
4. Colic from obstructions.

By carrying this classification in our minds, and carefully excluding one class after another, we can gain information that will lead us "directly to the door of truth" in solving the problems of abdominal pain. For example :

1. We ask ourselves the question, Is this colic due to an irritant as indigestible food, gall-stones, foreign bodies, etc.?
2. Is this an inflammatory condition, a gastritis, hepatitis, pancreatitis, ileocolitis, ovaritis, cystitis, etc.?
3. Is it due to perforations, as from gastric or duodenal ulcer, gall-stones, ruptured appendix, ruptured extra uterine pregnancy, typhoid ulcer, etc.?
4. Can it be an obstruction as at the pyloric orifice of the stomach, stone in common duct, fecal impaction, intussusception, stone in the ureter or a hernia?

A carefully elicited history will aid us in eliminating one or two of these classes.

If there is no history of preceding attacks, stabbing pain in the epigastrium, regular discharges, eructations of gas and indigestible food, with a history of cheese and pumpkin pie for dinner, we could safely eliminate inflammations, perforations and obstructions. If there have been recurrent attacks, a continuous preceding illness, or a cachexia, we at once think of the possibility of the existence of appendicitis, gastritis, renal or biliary calculi, gastric ulcer, carcinoma, etc.

If with a history of several months' preceding illness, usually described as indigestion, we have a sudden, sharp lancinating pain, *localized* at first, afterwards diffused; easy vomiting, with symptoms of profound shock or hemorrhage, a perforation of some important viscus is to be suspected.

When we find a patient doubled up with colic, coming on suddenly, no history of preceding attacks or illness, following, perhaps, a sudden fall or injury, distressing vomiting, sometimes stercoraceous, we think of an obstructive cause, but with *no history* of preceding attacks great care must be exercised in excluding the other classes of abdominal pain. These first attacks of colic are rocks upon which a hasty diagnosis will often flounder. In such instances it is much wiser to defer a diagnosis than to make a guess that will place us in a ridiculous attitude afterwards.

The cause of a colic, like murder, will out. If a crisis is not eminent we are justifiable in waiting until the underlying pathological condition leaves unmistakable landmarks in its wake.

Next in importance to a carefully-recorded history is a thorough physical examination. We cannot diagnose intra-abdominal mischief by inspecting the tongue and palpating the pulse; the clothing must be removed, and our examination proceeded with in a systematic manner. By inspection we note distention and depression, jaundice, exaggerated peristalsis, prominences that sometimes move with respiration, epigastric pulsation, the intensity of pain as evidenced by dicubitus, facial expression, etc.

Palpation reveals the character of prominences noted by inspection. If hard, a tumor is suggested; if soft, the presence of fluid or gas is probable; localized sensitiveness is suggestive, as is relief from pain in some cases from broad, deep pressure. By

gently stroking and pinching we note if sensitive area is superficial or deep, the rigidity of muscles, the enlargement or displacement of organs, and, sometimes, reflex nervous phenomena.

Auscultation is of but little value, except to detect the presence or absence of borborygmus. Percussion is corroborative of irregularities, distentions, etc., noted by inspection and palpation.

If we will carry in our mind's eye a clear picture of the anatomical position, relations and topography of the various abdominal viscera, the origin, location, diffusion or localization of the pain becomes at once a very significant symptom. For example:

In appendiceal colic the pain is first indefinite and diffused over abdomen.

2. Localized at McBurney's point when peritonitis is beginning.

3. Again diffused over the entire abdomen with the spreading of peritonitis. The various perforations are at first signaled by a distinct localized pain, but as peritonitis supervenes, the pain is diffused over the entire abdomen.

From ordinary colic from indigestion we have localization of pain at first, with diffusion afterwards, but without symptoms of peritonitis. The act of vomiting, when associated with abdominal pain, is of much diagnostic importance. We are all familiar with the violent, copious, projectile vomiting of indigestion, the distressing retchings and stercoraceous vomit associated with obstructions.

The bilious character in hepatic colic, and the easy eructation of advanced peritonitis. Dr. Deaver says: "If sharp pain precedes the act of vomiting, it will almost invariably be found that peritoneal involvement is present; whereas, if vomiting is the first symptom, the diagnosis of any peritoneal lesion, especially appendicitis, must be accepted with great reservation." Diarrhea, associated with colic, suggests an intestinal origin, usually a colitis. If the irritant is above the iliocecal valve vomiting usually precedes the diarrhea. The strongly acid vomit of gastric ulcer, the coffee-ground vomit of carcinoma, as well as hematemesis and melena, are familiar reminders to us all.

The treatment of colic opens up a field of thought too broad for a thorough consideration here. Treatment is easily determined after the diagnosis, but danger comes where treatment (as it often does) precedes the diagnosis. Some one has tersely

summed up the treatment of all forms of colic in three little words, "Remove the cause." If the stomach is distended with decomposing products of incomplete digestion, take the shortest route out with the offending substance—give an emetic and practice lavage. If several hours have elapsed since the offending meal, and we have a fermentative process in the intestines, as evidenced by colicky pains and diarrhea, assist nature by giving a sharp purgative and washing out the colon. And through the entire category of medical and surgical colics, "Remove the cause." It is often more difficult to refrain from doing something that should not be done, than it is to determine what to do. A safe rule is, do nothing without a well-defined idea of the underlying cause.

The laity expects us to cure colic at the first sitting. Strong demands are made for relief—immediate relief. This subjects the physician to the strongest temptation to resort at once (without an examination) to the ever-ready hypodermic syringe, indulge the sufferer in a "happy opium trance," and thus appropriate the immediate gratitude of patient, family and friends—an alluring temptation, to be sure, but ah! how often is that peaceful slumber interrupted within a few hours by a recurrence of pain, more intense than ever. The physician is hastily summoned, vehement appeals for relief are made, stronger than before. The golden opportunity for a correct diagnosis has passed; our reputation is at a discount. A crisis stares us steadily in the face. We realize that something is doing somewhere in the abdominal cavity. The burning question with the physician is, what organ or organs are involved? A diagnosis is now imperative. Medical or surgical case? That is the question—a dilemma from which it is not always easy to extricate one's self. On one horn of the dilemma we see hanging that old friend, the hypodermic syringe. Many of us fall from grace, and another hypodermic is given, and another, and another. The patient glides sweetly on, until we face a tender tympanitic abdomen, a pinched expression, an incessant vomiting. We must stand idly by and witness the ravages of a fatal peritonitis.

It is true that not every colic will terminate so sadly, but if we form the vicious habit of easing colics we will sometime meet this grave picture of distress.

If we would only realize that at least ninety pathological causes

of colic requiring only medical treatment may exist within the abdominal cavity, and that over 100 serious surgical causes may find expression in a colic, we would certainly deliberate long before obscuring symptoms by an early resort to the preparations of opium.

DISCUSSION ON THE PAPERS OF DRs. RICKETTS, HAGGARD AND BREEDING.

DR. GEO. R. WEST, of Chattanooga :

In the discussion of the treatment of the stump in the operation for appendectomy, there has gotten to be but one view, namely, as little manipulation as possible, and, following Wyeth and the majority of other successful surgeons, I have been doing nothing except tying the appendix, crushing and cutting it off: but in addition to that, I find the puckered appendix tied off, and the puckered mesoappendix tied off at two points to which the omentum may adhere and produce some troublesome adhesions, so I take the catgut end of each of those and turn the two raw surfaces together in order to conceal the raw ends.

I am sorry the paper on the symptoms of appendicitis was not read. Dr. Haggard has gone over the classical cases of appendicitis, but when we have an irritation at the neck of the bladder as a symptom of appendicitis, or if we have jaundice as the symptom of appendicitis, or if we have pain in the region of the gall bladder or a pyloric spasm, then we have some of the reflex symptoms, some peculiar symptoms. I have had some of these cases which were not diagnosed except at the post-mortem table. I recall an instance in which jaundice had occurred several times, which was the result of a post-cecal abscess, due to a long-standing and adherent appendicitis. The obstruction that Dr. Haggard referred to is a most common condition which results from appendicitis, and which confuses one in making an accurate diagnosis.

DR. LOUIS LEROY, of Memphis :

I would like to compliment the paper of Dr. Breeding, and add to the most excellent classification which he gave another series of cases which must be classed with colic—namely, those of nervous origin, cases associated with hysteria, which are classed vaguely with the ovarian colics; and another series of which I have observed two instances of a most violent colic associated with chronic morphine habituation. All three of these conditions are capable of producing the most violent spasms of abdominal pain. I recall one case with pain over the region of the appendix, some tenderness over the gall bladder, the pain being reflected upward. These attacks came on rather frequently, and led a most competent surgeon to operate, under the impression that the pathology was

in the neighborhood of the gall bladder. The appendix was examined at the same time, by lengthening the incision, as were also the uterine adnexa. The case apparently was entirely due to the morphine habituation, with a rather profound neurasthenia. I mention this simply as an addition to the most excellent classification which the doctor presented.

As to the symptoms, we must not lose sight of the fact that abdominal pain not infrequently is referred from the thorax. I had two cases last summer and this fall in which the thoracic disturbance gave rise to acute abdominal pain, so that my interne in the city hospital had classified the case as one of abdominal pathology, and was simply waiting for me to come to refer it to the surgical ward. And one other case of a similar nature which I diagnosed subsequently as sarcoma of the lung, which diagnosis, about four months later, was substantiated by a post-mortem.

Again, under the symptoms in consultation I came across an interesting case with periodic jaundice, which had not been associated with severe, but with recurrent, abdominal pain, in which a chronic appendicitis was found, and a large lymph node just opposite the beginning of the common duct, and when the appendiceal attack would come on, the swelling of that gland would occur, producing a partial obstruction. At one time the gall bladder was palpable. With the subsidence of the attack the swelling of the lymph node diminished, and the gall bladder would drain itself. That case was operated on, and did fairly well. I have lost track of it altogether.

DR. JERE L. CROOK, of Jackson:

I believe the present status of appendiceal and gall bladder surgery furnishes, perhaps, the greatest cause for congratulation which modern surgery has to its credit.

I was impressed, as I sat here and listened to the classical paper of Dr. Haggard, with the sound and firm position which all modern surgeons take in reference to the treatment of disease of the appendix, and I could not but compare the unanimity with which this body has been confronted with what has occurred several times before this Association and before similar societies all over the country in the good old times when the medical men were arrayed on one side of the room and the surgeons on the other, and fight for several hours as to whether or not we should operate, some taking the position that no case should be operated on, etc. A minor cause for congratulation may be found in the fact that not only has it become a surgical disease, but it has become so definite in its symptoms and in its pathology, that there is practically no difference of opinion now at all. I believe that Dr. Haggard has voiced the best sentiment of the medical profession of the world in his summary of the time to operate, and his reasons therefor.

I heard a question propounded to Dr. William J. Mayor during his clinic last spring as to when to operate for appendicitis, or when he

preferred to operate. He replied: "Gentlemen, I always operate whenever I believe the inflammation is confined to the appendix, regardless of the time I see the patient. If I have occasion to believe that the products of inflammation are not confined to the appendix, I use my own judgment in treating the patient for a few days until nature walls off the abscess. That is one of the best courses to pursue, but if a patient is brought in on the third or fourth day, or fifth day, and a careful examination convinces me that the appendix still contains septic products, then I believe that patient would be safer with the appendix out."

Another point I wish to emphasize is with reference to the diagnosis, and that is, perhaps the most important thing for this Association to discuss. A prompt diagnosis will govern the action of the physician or surgeon, and on which will depend very much the chance for the patient's life. The cases that die are in nearly every instance those in which the surgeon is not called until the appendix contains septic products. If the surgeon were called within the first twenty-four or thirty-six hours and operated, the mortality from operations would be reduced below 2 per cent—in a great many instance, below 1 per cent. It is important for the medical man to have impressed upon him the classical symptoms, and to make a diagnosis early. And just here I think Dr. Murphy in his reprint, giving his views based on 2,000 cases, says that the sequence of the symptoms has much to do with the diagnosis, laying particular stress on the fact that pain, tenderness and rigidity follow in every instance. He makes the statement that if there be elevation of temperature preceding the pain, tenderness and rigidity, it is not likely to be appendicitis. In other words, you have got pathology before you have appendicitis developed, or you have something else besides appendicitis to deal with.

With reference to the paper of Dr. Ricketts, whose investigations have been made very carefully, I am impressed with the fact that we owe him and other surgeons who have pursued the same line of investigation another debt of gratitude in pointing out the simplicity of the operation, which is so much easier than it used to be. The occasional operator—the one who does not make a specialty of abdominal surgery—has this much to congratulate himself on—the simplicity of the operation. In other words, I well remember the time when the New York method of disposing of the appendiceal stump was considered to have been the most efficient for the cure of the disease. It got to the point where every man had, or has, his particular method of treating the stump. I had occasion to see Dr. Dawbarn illustrate his method shortly after promulgating it, and with great pride he explained it to everybody; that is, the use of the purse-string suture. Now, I think, we have the method reduced to its simplest form.

DR. CHARLES P. McNABB, of Knoxville:

I am interested in this subject of appendicitis. Some years ago my own appendix was removed by Dr. Deaver. I have operated on several

cases of the disease myself, and I have yet to see the first case that I have been able to watch after the operation who has not had more or less trouble with constipation. I believe that the appendix has some specific function; that it furnishes a secretion of some kind or another that aids in the propulsion and removal of the intestinal contents.

With reference to colic, Dr. Breeding would have had a better title if he had said, "pain in the abdomen," instead of colic. I know of no subject of more interest than that one is to the clinician. When called to see a patient suffering from pain in the belly, the clinician has a proposition before him to determine what causes that pain. It may be reflected from different parts of the body, and there are so many organs in the abdomen that are subject to pain, that it is a very important symptom.

I understood Dr. Breeding to condemn the administration of morphine in these cases, and no one has a greater horror for the administration of opiates than I have. I am somewhat of a crank on this subject, in that I do not believe in giving an opiate as long as it can be avoided. But I believe, from a considerable experience in cases of intense pain in the belly, that the first thing to do is to ease the pain, and make the diagnosis afterwards. The simple fact of allaying the pain does not hide its cause. There is no danger of hiding the symptoms by giving a hypodermic injection of morphine to control pain. I believe, as the doctor has said, it is a very bad thing to be free with the use of the hypodermic needle, and perhaps people would have been better off if the hypodermic syringe had never been invented; although there is no more useful instrument in the whole armamentarium of the physician than that of the hypodermic syringe. But it has a place of usefulness, and that place is nowhere better illustrated than in a case of intense pain in the abdomen. A patient will die from the shock of pain. I recall a case of appendicitis, with perforation, in which the individual would have died from the intensity of the pain before the reaction had the physicians not relieved it by giving hypodermics of morphine.

DR. M. C. McGANNON, of Nashville:

It was not my intention to say a word on this subject, because I thought almost the last word had been said, and I would not now be upon my feet were it not for the fact that in this discussion some points need to be emphasized.

Practically speaking, we have had a very classical discussion of this subject, so far as the symptomatology is concerned. The unique cases do not come under the head of the classification given by the essayist.

In the short time that is allotted to me for discussion I wish to call attention to two diseases that have not been mentioned, but which may produce pain about the abdomen. One is tabes dorsalis. This may be mistaken for gall bladder, or even appendiceal trouble. I have known both these mistakes to occur when the patients suffered from loco-

motor ataxia, and a diagnosis of appendicitis in one instance was made and of gall bladder trouble in the other. Jaundice as a symptom of appendicitis is extremely rare. There must be some other condition besides an attack of appendicitis to produce jaundice. You can readily understand that there is very little association between the appendix and the common duct, so that jaundice must be hematogenous if it is associated with appendicitis, unless it happens to be one of those rare conditions described by Dr. Leroy, in which there is a gland so situated that it may press on the common duct and obstruct the outflow of bile from the liver into the intestine. I cannot conceive that the enlargement of the gland in the case reported was due to drainage through the lymphatics from the appendix, because the lymphatics of the appendix do not drain into the glands adjacent to the common duct.

The treatment of appendicitis is one that strikes me as being of the greatest importance. It is generally admitted that there is no such a thing as a medical treatment for appendicitis. It is purely a surgical disease, and the operations now done for this purpose are so crystallized that it is hardly worth while to discuss them. The method of treatment of the stump is so well understood, and so thoroughly mastered, that even this magnificent report that Dr. Ricketts has presented to us, contains less of interest than it would have done a few years ago. The treatment, however, resolves itself into this: It is generally admitted that the medical treatment of appendicitis produces a mortality rate of at least 10 per cent. I want to make it mild, and I think if I say 8 or 10 per cent it will be sufficient for the purposes of discussion, and that I shall be well within the bounds of truth. Let us say, then, that the medical treatment produces a mortality rate of 8 or 10 per cent. The mortality from surgical treatment of the interval cases, as has been demonstrated by a celebrated English surgeon, who reports a thousand cases, is one in five hundred. Now, if operation is done during the first twelve or twenty-four hours it possesses no more danger, practically, than when an operation is done for interval cases, so that the mortality rate for cases of appendicitis operated within the first twenty-four hours should not produce a mortality anything like 2 per cent. A mortality rate of one-third of 1 per cent, or one-half of 1 per cent, ought to be the maximum when the work is done by competent surgeons and in good surroundings. If you will compare these two, one-half of 1 per cent from surgical treatment adopted during the first few hours of the disease, and 10 per cent under medical treatment, no matter how or what time it is employed, there can be no question but what the surgical treatment should be adopted in every case. If this be true—and there are hardly any persons who will gainsay the statements I have made in regard to the surgical and medical treatment—there can be no excuse for any of us putting off surgical treatment of these cases. But they are put off, as has been exemplified by the mortality in the practice of every man here. Within the last two months I know of three patients who have died as the result of delay in advising or insisting on operations.

DR. Y. L. ABERNATHY, of Hill City:

I wish to endorse the remarks of Dr. McNabb in regard to the use of morphine for relieving pain in the abdomen or pain anywhere else. It acts like magic. It is miraculous in its power, and rarely disappoints us.

I appreciate the gravity of the symptoms that the gentleman mentioned in his most excellent article. I am aware of the fact that a number of grave troubles appear besides the very common, old-fashioned buttermilk and cabbage bellyaches, which can be relieved promptly by apomorphine and morphine, hypodermically.

Fortunately, perhaps, 90 per cent of cases of abdominal pain are the result of indiscretion in diet. So excruciating is this pain, and the necessity for relief so urgent, that the slight danger of masking some more grave condition should not be considered. Besides surgery should not monopolize the entire field of medicine. It should at least allow the general practitioner to relieve bellyache and other pain, with our surest and greatest boon to humanity—morphine.

DR. RICKETTS (closing the discussion on his part):

It has been interesting to listen to this discussion. My whole object in presenting this paper was to arrive at a technic which would prevent the loss of life, and there has been so much said with regard to the purse-string suture, that I believe it has been the cause of hemorrhages for want of a proper technic in that procedure, and I believe there is one way which, if adopted, will not be followed by hemorrhage. Some of you would be amazed were I to read the letters I have received from surgeons who have abandoned the purse-string method within the last year or two, and more are doing so.

With reference to some of the symptoms, in two cases I have had priapism, in one of which it lasted for twenty-four hours, and in the other forty-eight hours, but this condition was not relieved until the appendix was removed. I have had several cases of frequent urination in females which persisted until the appendix was removed. These women would urinate every ten or fifteen minutes.

With reference to the mortality, the Mayos report—and you will find this in my paper—in the chronic cases of appendicitis a mortality of one to a thousand; in the acute cases, one to eighty. Why is that so? They get these cases and operate on them in the interval. They do not get cases as we get them, at all stages. Therefore, we cannot rely on the statements of the Mayos, or, at least, we cannot draw any conclusions from their cases, because they do not get the bad ones.

With reference to the Dawbarn method, it is a question whether he originated it, and the preponderence of evidence would not give him credit for it.

With reference to the table presented, we have at least forty cases,

and I am able to report twenty additional cases, of hemorrhage from the purse-string method. You must accept the conclusions that are drawn from this table.

With reference to the so-called evolution of the appendix, we find evidence that mummies had their appendices removed. We do not know why, but their appendices were undoubtedly removed for appendicitis. We find the appendix running through all animal life. Several years ago I wrote an article on this subject which was published in the Journal of the American Medical Association, giving the comparative relations of the appendix and cecum in animals, fish and birds, and reptiles. I refer you to that article.

Coming to the length of the mesoappendix, an infant just born, or a fetus in utero may have an appendix as large as a giant's in length and in circumference.

As to the time to operate, I am a first hour man. I am ready to operate as soon as I find a patient with appendicitis, and I follow that rule in my practice. That is my method, and I find men are coming to it right along. I believe it is impossible for any man to tell what is going on within the abdomen. I would rather operate on a thousand persons who have not disease of the appendix and save their lives, than to fail to do my duty to one having appendicitis by not operating.

DR. HAGGARD (closing the discussion on his part) :

In reference to the statement made by Dr. Ricketts regarding the statistics of the Mayos, I find in their last report of the hospital, 1907, there were 702 patients operated on for chronic appendicitis, without a single death. They do operate on the acute cases, and Dr. Ricketts is mistaken about that. Out of 432 acute and suppurative cases of appendicitis, there were five deaths. Five patients out of the 432, who had diffuse peritonitis, recovered. I have seen them operate on patients for appendicitis with the belly full of pus. But the beauty of it all is that I have visited the Mayos a number of times, and never saw them operate on a single solitary appendix that was not in a pathologic condition. I simply mention the 702 cases as bearing upon the thousand cases that Dr. McGannon spoke of with a death rate of one in five hundred. The Mayos have had 702 of these operations without a single death.

DR. BREEDING (closing the discussion) :

In reference to the remarks made by Dr. Leroy, that when patients habitually take morphine they complain of colicky pains in the abdomen, I must say that I have met with that condition a number of times, but it has been a question in my mind whether this was a real colicky pain, or whether it was an excuse fabricated by these patients for the purpose of taking morphine.

In regard to the statement of Dr. McNabb as to the administration of

hypodermics of morphine before a diagnosis is made because of colic, or before a systematic examination is made, I do not think that is good practice. An old farmer once expressed the idea very well to me in this language. He said: "I do not like Dr. A, for the reason that when he came to see me, he looked at my tongue, felt of my pulse, and then took out his hypodermic syringe and used it on me." Gentlemen, I do not think we should make such a shotgun discharge without attempting to get at the real pathological condition. Morphine, as we all know, will obscure and obtund the symptoms of the underlying cause of colic. We may give one hypodermic of morphine to allay pain, and if the muscles are still rigid we must repeat it again and again, until the patient becomes thoroughly relaxed, and if we continue to give morphine until he has no pain anywhere, then we undoubtedly mask important symptoms of disease.

DR. B. MERRILL RICKETTS, of Cincinnati:

With reference to hemorrhages following the purse-string method, the Mayos have had one death from 6,000 cases. Price and Deaver have had over 6,000 cases, and have never had a death from hemorrhage after ligation of the stump following the removal of the appendix. These statistics of themselves would condemn the purse-string method, and if anybody is skilled in using it, it is surely the Mayos.

TREATMENT AND PREVENTION OF TUBERCULOSIS BY TUBERCULIN IMMUNIZATION.

WM. LITTERER, A. M., M. D., NASHVILLE.



SPECIFIC treatment for any infectious disease must first have some theoretical foundation which shall be based upon at least a little experimental evidence, and, secondly, its value must finally depend upon results obtained from the clinical standpoint. The production of artificial immunity to tuberculosis was considered practically impossible of accomplishment, because there is scarcely any clinical evidence that one attack protects from another; certainly some immunity must, of course, occur, otherwise the spontaneous recoveries, as is often the case, would be impossible. For the past fifteen years tireless and painstaking experimental work has been carried on with a view to elucidate the possibility of producing immunity in the lower animals. It seems that the strongest and most lasting immunity that has been attained thus far is by vaccination with attenuated living bacilli, although the germ-free products and killed bacteria also have some value as an immunizing agent. In attempting to formulate a method of immunization in the tuberculous subject, the study of the mechanism of artificial immunization in animals is imperative. At this juncture it seems pertinent to discuss briefly the different species of the "tubercle bacillus" before taking up the immunity question. Robert Koch, in his masterful monograph published in 1884, in which he gave a long list of cultures of the tubercle bacillus isolated from tuberculous tissues in fowls, cattle and man, was unable to detect any difference among them, declaring "that in all the cultures, whether taken from miliary tubercles, lupus, or perlsucht, the tubercle bacillus behaved exactly the same." Within the last decade our knowledge of the nature of the tubercle bacillus has been greatly enhanced, until at the present time several distinct species are recognized. These are grouped, according to their sources, into human, bovine, avian and the tubercle bacilli of cold-blooded animals. This last group of

bacilli is of comparatively small importance to the warm-blooded animals, since they are unable to grow at temperatures approaching blood heat, thereby precluding any possibility of infection. The avian tubercle bacillus departs quite considerably from either the bovine or human types of bacilli. This is shown by the lack of susceptibility to certain animals, for example, the guinea-pig, which is otherwise so sensitive to the inoculation of the mammalian bacilli, shows a marked degree of refractoriness to the avian type; on the other hand, birds react very slightly, often producing only localized lesions to inoculations of the tubercle bacilli of human origin. Cases have been reported in the literature where the avian bacillus was isolated from the human being, but such cases are excessively rare. Rabinowitsch calls attention to the occasional occurrence of the avian bacillus in cattle, swine, horses, monkeys, etc., but Simon Flexner is of the opinion that they constitute a small source of danger in the spread of tuberculosis among mammals. To Theobald Smith is due the honor of first calling attention to the distinction in type existing between certain bacilli of human and of bovine origin. Later, in 1901, Robert Koch startled the scientific world with his announcement that "Tuberculosis in cattle offers no source of danger to the human being." He still adheres to his original conception as evidenced by the fact that he reiterated in his Nobel-prize address (delivered in 1906) that "human tuberculosis and tuberculosis in cattle are so distinct from each other that the latter is not to be feared as transmissible to man." It has been proved beyond all peradventure of a doubt that such a statement is not correct; but it has accomplished more than anything else towards stimulating researches throughout the civilized world to either prove or refute such an assertion. Theobald Smith characterized the bovine tubercle bacillus as possessing a greater degree of pathogenic power for mammals than the human bacilli. It also differs from the latter by certain peculiarities of cultural and physiological properties, and that it was impossible to transmute one type into the other under artificial conditions of cultivation. Most authorities agree that transformation of avian, bovine, and human bacilli into each other, is questionable, even if one variety of bacilli was cultivated for a long period of time in the body of an alien species. Repeated experiments show that tuberculosis materials and cultures of tubercle bacilli of human

origin when injected into cattle failed to produce a marked or a general tuberculous infection, even when the material was inoculated directly into the circulation.

It is not within the scope of this paper to discuss fully the different types of tubercle bacilli and their pathogenicity. With this statement we may take up the subject of immunity. The animals which have been of special use for tests of immunity are rabbits, cattle, goats and guinea-pigs, the latter being so susceptible to the tubercle bacillus that it is well-nigh impossible to produce a high grade of immunity in them. Koch made the first important contribution to the subject of immunity in tuberculosis by means of his tuberculin. Several years following many experiments had varying degree of success in the production of immunity in the small animals by the use of tuberculin and attenuated cultures of the tubercle bacillus. The most convincing evidence of the favorable results of experimental immunity in tuberculosis was made by Trudeau as early as 1892. He treated tuberculous iritis in the rabbit's eye by subcutaneous injections of tuberculin, which resulted in a retrogression of the lesion and an apparent healing took place, which, however, ultimately relapsed somewhat, though very slowly. He further found that guinea-pigs and rabbits previously injected with dead tubercle bacilli live, on an average, longer than the control animals when subsequently inoculated. Trudeau went a step farther: he protected rabbits from virulent tubercle bacilli by twice injecting them with an attenuated culture of bird tubercle bacilli subcutaneously at intervals of twenty-one days, then the subsequent injection of the virulent mammalian bacilli was made into the anterior chamber of the eye. Of the protected rabbits, not one developed a tuberculous lesion, while the controls showed in the course of a few weeks a general inflammation of the structures of the eye, the inoculation wound became cheesy, followed later by more or less complete destruction of the eyeball.

DeSchweintz, a few years later, reported certain experiments which he had made on guinea-pigs and cattle. The former was inoculated with cultures of human tubercle bacilli, cultivated for twenty generations. Their virulence was of very low grade to these animals, but it served to protect them later, against the inoculation with tuberculous material from a cow. Other pigs, unprotected, were inoculated with the same material, became tuber-

culous, and died in about seven weeks. These and other experiments clearly establish the protective influence exerted by the subsequent inoculation of the living attenuated bacilli to be more lasting and of greater potency than the immunity obtained by the bacterial products. Trudeau claims he has never been able to thoroughly protect guinea-pigs against a virulent tubercle bacillus, nor has he ever succeeded in curing experimental tuberculosis in them. Behring, as well as Koch, claim to have protected guinea-pigs against virulent infection, but the details of their *modus operandi* are exceedingly meagre. The successful immunization or cure of guinea-pigs with the living or dead bacilli, or their specific products has possibly been accomplished in rare instances. It can be argued in favor of such experiments that a single demonstrated positive result is far better evidence than countless negative ones, when we consider for a moment that the guinea-pig is the most susceptible of all animals, and that spontaneous recovery in them is unknown. Behring, in his Nobel-prize address, in the latter part of the year 1901, announced that it was possible and feasible to vaccinate cattle against tuberculosis. His first experiments were an effort to immunize them by means of tuberculin; later he tried the different toxins from the tubercle bacillus, the dead bacilli, and the attenuated cultures of the tubercle bacilli were also employed. His present plan of immunization, which has become a standard one, for it is now furnished commercially, is as follows: Young calves, preferably twelve weeks old, are inoculated intravenously with a standard human culture; three months later an increased quantity of said culture is again injected. Cattle so treated may be regarded as highly immune, as shown by inoculating with a virulent bovine culture of tubercle bacilli, with no permanent ill effects resulting. But if unprotected animals were inoculated with the same culture, a generalized tuberculosis developed, producing death in a few weeks. Behring speaks of his vaccinated animals as being "Jennerized," and believes that immunity lasts for life. Simon Flexner in his admirable Monograph on "Immunity in Tuberculosis," which was read before the second annual meeting of the National Association for the Study and Prevention of Tuberculosis, calls attention to the fact that McFadyean is entitled to the credit of the discovery equally with Behring. Neufeld, a pupil of Koch and Behring, in discussing the priority of this important

question, asserts that while working under Koch's direction he found, as early as 1900, that large animals—the donkey and cattle, for instance, could be protected against the inoculation of a culture of virulent tubercle bacilli which was always fatal to control animals. So it seems that the priority of this important subject is an open one. As a matter of fact, the principle employed is not new in experimental medicine, for it was practiced long years ago by the immortal Pasteur in vaccination against fowl cholera, anthrax, etc. In 1902 Pearson and Gilliland not only were able to confirm the results of the preceding investigations, but were able to carry the principles of the method a step further by endeavoring to bring about an arrest of the disease in cattle already suffering from tuberculosis. Flexner, in discussing this subject, states that "while it is unlikely that such a therapeutic use of vaccination will ever be made in veterinary practice, the facts are of considerable theoretical interest, especially in view of the somewhat similar means employed to arrest tuberculosis in man." If all young, healthy cattle were vaccinated before tuberculosis set in, it would seem that this disease could be entirely eradicated, and the gain would be almost incalculable to agriculture. Furthermore, it would enlarge the possibilities of producing immunity in the healthy human subject, if it was thoroughly demonstrated in the lower animals over a long period of time that such a procedure was entirely harmless. It seems that the most satisfactory and solid immunity obtained in cattle is produced by a living culture of tubercle bacilli of human origin. This, when injected two or three times, according to Behring, renders the animal immune for life. This statement has not been proved, but it is certain that immunity has lasted at least two years against the inoculation of a virulent culture of bovine tubercle bacilli. I have had little experience in this form of immunity, but have contented myself with the use of the dead tubercle bacilli killed at their minimum thermal death point. My results are all that could be desired. I and my assistants have had under experimentation for the last two years two herd of Jersey cattle, twenty in one herd and twenty-eight in the other. Every year previous to the last two, at least two or three animals would die from some form of tuberculosis. Before instituting any form of vaccine treatment, we used tuberculin as a diagnostic test, which resulted in a positive reaction in six, thus showing that six cows had some

form of tuberculosis out of the forty-eight, three tuberculous cows coming from each herd. The vaccine used was a virulent culture of tubercle bacilli of bovine origin, heated for one hour at 60 degrees centigrade. The healthy animals were injected with five milligrams of the vaccine subcutaneously as an initial dose, followed one month later by ten milligrams, and three months later by twenty milligrams; the last dose was one hundred milligrams, which was given six months from the first injection. Two years have elapsed without a death from tuberculosis, except three which belonged to the original six previously diagnosed as tuberculous by the tuberculin test. The three animals that were in the last stages were isolated, while the remaining six, not far advanced, were allowed to run with the heard. Two of these have practically been cured (so far as we can determine as to symptoms, temperature, etc.) by the bovine vaccine. In treating the tuberculous cows, the method of Trudeau in treating tuberculous human beings was, in a measure, adhered to. We began with small doses and ran up to very high ones, injecting every week. Our initial dose was $1-100$ of a milligram, with double the dose at the next inoculation, and so on, after the method of Trudeau. Of the six tuberculous cows in which the above treatment was taken up by us just two years ago, three have died, one will possibly succumb to the infection in the course of a month or so, while two are apparently well. We believe that the injections greatly prolonged life in at least three cows, while the two apparent recoveries were cases of a mild type; still we believe that the treatment aided very materially in their recovery.

All the foregoing experiments by the different investigators unquestionably establishes for tuberculosis the principles of artificial immunization, an achievement hitherto considered as impossible. Although this immunity in very susceptible animals may not be as frank and lasting as we would like, still experiments have proven that it undoubtedly prolongs life when a lethal dose of virulent bacilli be administered to the vaccinated animal, as compared with a similar dose given to the unprotected one. Again, it has been shown in the larger animals suffering from localized tuberculosis that by a systematic administration of a tubercle vaccine that there is a retardation in the development of the disease, producing reparative changes in the lesions, and if in the earlier stages, often

a complete recovery results. We may ask the question, Why should we not expect just as good, if not better, results in man than have been accomplished in the lower animals? We know that the human being is not as susceptible to this disease as most of the animals experimented on, because the normal resisting power of the body overcomes the invading organisms, and that spontaneous recoveries in man are exceedingly common. These facts offer us some hope for the future. Already Trudeau has given us some very encouraging figures, showing the comparison of the post-discharge mortality between patients treated and those that were untreated with tuberculin at the Saranac Lake Sanitorium. He says that 18 per cent more of treated incipient cases are living than of the untreated, while 25 per cent more of advanced cases who received tuberculin are living than of those who did not. It would be entirely feasible to administer a series of inoculations of the vaccine to certain individuals who have a tendency to consumption, even though they had not the disease at the time. Given a child that is listless, with a pallid skin and flabby flesh, a tendency to inflammations of mucous membranes; in other words, a vitiated state of the tissues, a tendency to tuberculosis. In such an individual the tuberculin treatment is imperatively indicated.

The Tuberculins: The term "tuberculin" is a broad one, which includes quite a number of different preparations. The first used was Koch's original tuberculin, "T.O." called also "old" tuberculin, to distinguish it from his more recent products, "new" tuberculin.

The "old" tuberculin is the concentrated germ-free culture media (glycerin bouillon), in which the tubercle bacilli were allowed to grow for several weeks.

The Tuberculin (Denys) Bouillon Filtrate "B.F." is a product rather similar to the "T.O." but differs from it in that no heat is used in its preparation, and that the bacilli are grown in bouillon.

The Tuberculin R., "T.R." or "Tuberculin Residue." This is prepared by growing a virulent culture of tubercle bacilli. They are dried in the dark in vacuo and then pulverized. The powder thus obtained is suspended in distilled water and centrifugated at very high speed for about thirty minutes. The water is then drawn off, discarded, and the bacterial residue is again dried in

vacuo, as above, and treated in the same manner. This is done for several times. It is supplied in liquid form, containing 2 mg. of the powder to the cc. of 20 per cent glycerine solution.

Bacillen Emulsion, "B.E." This is Koch's latest product, which he has suggested for active immunization. It consists of an emulsion of the ground-up tubercle bacilli in equal parts of glycerin and normal saline solution. There are many other preparations used, viz., the antiphthisin (Klebs), Hunter's modification of old tuberculin, the water extract of tubercle bacilli (Von Ruck). The "P.T.O.," Spengler, and many others. The action of all these various tuberculins, according to Pottenger, is similar in part, yet different. Some are much safer to use than others, and some seem to produce better results than others. His experience with the "P. T. O." (Spengler) is very encouraging. This product is made from bovine bacilli. Pottenger claims that "P. T. O" will immunize against the human toxins much stronger than the human will against the bovine toxin. He further states that its use will raise the agglutinating power of the blood to a much higher degree than the human tuberculins, and that this power of agglutination will last longer. Taking all the tuberculins into consideration, it would seem, theoretically, that the Bascillen Emulsion would offer the most suitable medium to use in order to produce the most marked grade of immunity to the various activities of the tubercle bacillus. It contains not only the body substance of the bacteria, but the toxins of the old tuberculin as well. The old tuberculin produces antitoxic immunity, while the "B. E." produces bactericidal and antitoxic immunity.

Prof. Theobald Smith, as a result of his recent studies on animals, suggests virulent uncrushed tubercle bacilli, killed at 60 degrees Centigrade, as the best vaccine to be tried in attempts at immunizing human beings. Personally I have used only the "Bacillen Emulsion" for therapeutic administration, and the old tuberculin as well as the "B. E." for diagnostic purposes. My results have been so gratifying that I have no reason for changing to other preparations. I have observed that after a change from one make of the "Bacillen Emulsion" to another (especially in some patients, where they seem not to be doing well) that I was surprised sometimes to find patients again on the road to health after the measures previously applied seemed to have reached the

limit of their efficacy. The method employed in the administration of the "Bacillen Emulsion" is according to Trudeau's plan. It is not possible to give in detail the plan, for the lack of time, but suffice it to state that he begins with extremely small doses— $1+10,000$ of a milligram, and gradually increases so gradually and at such intervals as to carry the patient to full doses with as little disturbance as possible. By such a method individuals can take ten thousand times stronger than the original dose without any effect. Injections are given about twice a week, of course depending upon the symptoms of the patient, for herein lies the secret of success in the treatment. This plan may be called the Practical, or Clinical method, in contradistinction to the Scientific or Laboratory method, as advocated by Wright and his followers. Wright's method of immunization is based essentially on the determination of the index. In a previous communication, about a year and a half ago, I advocated the administration of tuberculin governed by the opsonic index. Certainly such a method is a brilliant contribution to our knowledge of the mechanism of artificial immunization, but it takes much time and work necessary in determining the index, hence makes it impractical of application in the treatment of tuberculosis by such method. I find myself slowly drifting to the "clinical symptomatology," not only by reason of its practicability of administration, but also by the just as good results that are being obtained by this method, as compared with that of Wright.

In conclusion I may state:

1. Experiments on animals demonstrate the possibility of creating immunity to tuberculosis by the use of the tuberculins.
2. Believe time is not far distant when individuals showing a tuberculous tendency will submit themselves to the repeated injections of some form of tuberculin, as a means of prophylaxis against this disease.
3. The clinical method in the administration of tuberculin is far preferable to the one advocated by Wright in which the estimation of the opsonic index is essential.
4. Tuberculin therapy is proving an essential aid in the treatment of tuberculosis, especially as an adjuvant to the hygienic-dietetic-open-air treatment.

DISCUSSION ON THE PAPER OF DR. LITTERER.

DR. LOUIS LEROY, of Memphis:

Mr. President—I regret I missed the reading of the first page or so of the paper, but the conclusions the author has reached I was very glad to hear, because they coincide with the ideas of the subject I have had, and have been strengthened in as time has gone by.

I believe that a good part of the country has gone opsonin mad, and that many practitioners have followed opsonic work further than they have been justified. In other words, the opsonin portion of the work is simply an attachment, you may say, to the value obtained by vaccine therapy. The advantage to be obtained from the introduction of bacterial products has been known for many, many years, and it was only in casting about for a method to control this in a way that the work of Wright was developed. Now, our trouble in the past has been simply that we have used too large amounts of bacterial products—bacterins as we call them now—of which tuberculin is one. We have used too large amounts, and have not used them intelligently. We have not had in mind exactly what we were driving at, and have had trouble from the severe negative phases that have been the result.

As to the particular use of these tuberculins, whether it be the old or the new, or the watery extract, or the vaccines, because all of them practically act in the same general way, we have had our trouble before in two ways: First, by not carefully selecting the cases in which it is to be used; and, second, in not graduating our doses as they should be graduated. It was for this reason opsonic control was advised. But, as Dr. Litterer has pointed out, if we pay attention to the selection of our cases, study them individually, and watch them carefully clinically, we will as a routine matter, get about as good results as you will by the opsonic control, with infinitely less labor, and make the process a practical one, which it is not, if we have to have recourse to continuous opsonin examinations. The time required, the apparatus and skill required, would put a prohibitive price upon the work in most cases, and would limit the number of cases that we could take care of, because of the comparatively few men who are skilled in that type of work, and the inability of them to oversee many of the cases, even though they devoted their entire time to that one purpose.

As to the method of action, I am not at all sure that there is not another principle involved besides the one illustrated in the opsonic index. That is, I believe in tuberculosis there are other very important factors for us to remember besides the one of leucocytosis, and, after all, the opsonic theory takes into consideration practically only phagocytosis. The other points must be considered, and other processes are certainly in play in the resistance of the patient to the ravages of tuberculosis. Therefore, I believe that the opsonic work is only a part of the conflict in the body to free itself from tuberculosis.

DR. CHARLES P. McNABB, of Knoxville:

I do not know that I understood Dr. Litterer on one point, and I would like to ask him to make it clearer in closing the discussion, and while asking that, I want to state an idea of my own. I did not understand him whether or not human immunization could be produced with bovine or fowl tubercle bacilli, and I would like him to state in his reply whether it can be done or not.

I would like to have him explain further the use of crushed tubercle bacilli. If they are dead, it is all right. But in the process of crushing, as I understood him, it seems doubtful as to whether all of them are dead or not. Is it not possible that even one live tubercle bacillus that enters a lymph channel may be carried through the system and be deposited somewhere and multiply, and thus produce tuberculosis? Experiments recently made in which tubercle bacilli were injected into the end of the tails of animals were soon followed by lesions in the lungs. I would think that the human body is not as fruitful a field for the development of avian tubercle bacilli as it is for other types, from the fact that the normal human temperature is $98\frac{1}{2}^{\circ}$ F., and that of the fowl 104° . That fact would make the avian tubercle bacillus less likely to develop and produce pathologic lesions in the human subject, and if immunization can be thus produced, it certainly would be safer to use them in all experiments of this kind.

It is an interesting subject, and I think it is the only line along which we may expect results in the treatment of tuberculosis. Much progress has been made in the treatment of disease along the lines of stimulation of the natural tendency to overcome disease by the production of immunization in some way or other, and it is the proper and only way that much real progress has been made.

DR. G. E. VAUGHAN, of Clarksville:

I think the Association owes its thanks to Dr. Litterer for preparing this interesting paper. I expect it is one of the most important papers which will be heard at this meeting, and it illustrates one point brought up as an objection to the Journal which the Association contemplates publishing, when one of the gentlemen said that we did not have men of sufficient ability in Tennessee to contribute articles that would be interesting and profitable to read. We have not only Dr. Litterer, but others, who can produce practical and good papers.

Dr. McNabb brought out a point that is interesting to me, and that is, I don't know the exact method of crushing the tubercle bacilli. I would like Dr. Litterer to explain that more fully in his closing remarks.

I would ask him, also, whether he has had any experience with the ophthalmo-tuberculin reaction. It has been my impression in regard to that that it has not been found reliable so far. I would like to have him answer that question.

THE PRESIDENT:

Only the technical nature of the paper prevents its wide discussion.

DR. LITTERER (closing the discussion):

The question brought out by Dr. Leroy pertaining to the too great importance attributed to the estimation of the opsonic index, I fully concur in. In administering tuberculin to tuberculous patients, one should watch them very closely, especially with reference to their temperature. By beginning with a very small dose, and gradually increasing same, you will find that there will be little constitutional effects manifested. There is no reason why most any one cannot give the treatment. It does not take a man who is versed in bacteriology to administer the treatment. About a year and a half ago I thought it was a crime to use this clinical method, using and relying upon the opsonic index wholly, but now I am gradually dropping the opsonic index method, because it takes too much time, and, again, just as good, if not better, results are being obtained without it.

There are undoubtedly many other agents, such as the agglutinins, the lysins, the precipitins, and other substances that play a role in the mechanism of immunity, that the opsonins do not take account of. This is another reason, more than any other, that I prefer the clinical method to that of Wright's. The clinical method has been worked out most thoroughly for fifteen years by Trndean and many others.

There is certainly a great difference in the action of the various tuberculins. Take, for instance, the old Koch's tuberculin and the Koch's new tuberculin. The latter is certainly better for therapeutic effect, while the former is of more value for diagnostic purposes.

I am of the opinion that the "Bacillen Emulsion" is the very best for immunizing purposes. The tubercle bacilli are killed by subjecting them to a temperature of 60° C. for one hour. This is their minimum thermal death point. It sometimes happens that this temperature does not always kill every tubercle bacillus, so as a precautionary measure, I always inoculate several guinea-pigs with the "Bacillen Emulsion," in order to be sure that there are no living tubercle bacilli in it.

The question has been asked as to how the crushing of the tubercle bacilli is accomplished. In reply will say that they are usually crushed for a long time by means of a mortar and pestle, sometimes by machinery. It sometimes happens that the crushing of these germs is not complete, and there have been instances of resulting infection. Therefore, it is always best to test by animal inoculation such tuberculins to be given to human beings.

Dr. McNabb brought out a very important point when he asked whether the avian tubercle bacilli were able to produce immunity in the human. He called attention to the interesting fact that the temperature in birds was 104° F., or higher, and that they would not have a tendency to act upon the human being as well as in the fowl species.

Undoubtedly, if you can get an attenuated avian type of germ and inject it into a human being, it would be an ideal immunizing agent, because it has been thoroughly demonstrated in cattle that living human tubercle bacilli will confer absolute immunity, while dead ones will do so very slowly, taking a long time to do it.

THE SOUTHERN MEDICAL ASSOCIATION.

THE second annual meeting of this Association will be convened in Atlanta, Ga., November 10th. The Association will continue in session for three days. Dr. B. L. Wyman, of Birmingham is President. The scientific work will be done in three sections, officered as follows: Section on Medicine—Seal Harris, Chairman, Mobile, Ala.; H. E. Mitchell, Secretary, Birmingham, Ala. Section on Surgery—W. F. Westmoreland, Chairman, Atlanta, Ga.; J. L. Crook, Secretary, Jackson, Tenn. Section on Ophthalmology—J. T. Herron, Chairman, Jackson, Tenn.; A. B. Harris, Secretary, Birmingham, Ala.

Every member of the Tennessee State Medical Association is eligible to membership in the Southern Association, and it is certain that a large number of our members will gladly connect themselves with it. Any one, already a member or wishing to become one, who may desire to present a paper in either section at Atlanta should communicate at once with the officers of the proper section. Such a one, if not already a member, should send his application and two dollars to Dr. Oscar Dowling, Shreveport, La., who is the Secretary of the Southern Association.

This Association has been organized especially in the interest of the young men of the six Southern States composing it, but the older men will always be found present in great numbers at these meetings, partly for their own profit, but largely to encourage those who are younger. This Association is not a legislative body, but is scientific and social.

Rates on the railroads will be granted which will insure a large attendance.

Editorial and Business.

All communications relating to the Editorial or Business departments of the JOURNAL, should be sent to the office of the Editor, GEO. H. PRICE,
No. 146 Eighth Avenue, North, Nashville, Tennessee.

SPECIAL NOTICE TO COUNTY SECRETARIES AND SOME MEMBERS.

WE have sent a letter to every County Secretary upon whose list there was a member noted as not having paid his dues up to the time of the last Annual Meeting, urging him to see such member, or members, and get them to pay up. This is important, for annual dues now constitute the subscription to the JOURNAL, as has been noted heretofore, and consequently unless paid the delinquent member cannot be regarded as in good standing, and hence not a subscriber to the JOURNAL. We have also called the attention of every member (who was not noted as paid by his County Secretary when his original list was sent in) to this fact, and urged him to see his Secretary and arrange the matter at once. We think this advice has done some good, for we have heard from several, who had paid since the meeting.

We hope that those who received these letters will not put this off until too late, for it will be unfortunate to have a single name stricken from the mailing list. The amount is small, and the benefits derived great, to each one of you, therefore let us insist that this have prompt attention, and that the secretaries report at the earliest possible day.

INTERNATIONAL CONGRESS ON TUBER- CULOSIS.

UPON the invitation of The National Association for the Study and Prevention of Tuberculosis, the International Congress on Tuberculosis will meet in Washington, D. C., September 21 to October 12, 1908.

The Honorary President of the International Congress is President Theodore Roosevelt, the Honorary President for the United States is Dr. Edward L. Trudeau, the Honorary Vice Presidents are the Vice President of the United States, Secretary of the Treasury, Speaker of the House of Representatives, and Governors. The Treasurer is Mr. Henry Phipps, of New York. The General Secretary is Dr. John S. Fulton, No. 714 Colorado Building, Washington, D. C.

The Senate and House of Representatives extended the invitation through the Department of State to all countries having diplomatic relations with the United States to participate in this Congress.

A large number have accepted this invitation, and there will be brought together during these three weeks for the purpose of discussing every possible phase of this most important world issue, the leading exponents of the profession of medicine, from every civilized country.

This is to be the most notable, most important and far-reaching Congress ever held in this country, and will represent the latest word and thought upon what may properly be regarded as the urgent question before the world at this time. Indeed, the greatest forces of the civilized world are bearing upon this one question as the greatest sociologic problem of the age, with the full intention of solving it. The Congress will be divided into seven sections as follows:

Section I. Pathology and Bacteriology.

Section II. Clinical Study and Therapy of Tuberculosis—Sanatoria, Hospitals and Dispensaries.

Section III. Surgery and Orthopedics.

Section IV. Tuberculosis in Children—Etiology, Prevention and Treatment.

Section V. Hygienic, Social, Industrial and Economic Aspects of Tuberculosis.

Section VI. State and Municipal Control of Tuberculosis.

Section VII. Tuberculosis in Animals, and its Relations to Man.

The papers will be presented in French, German, Italian and English, and the transactions will be published in each of these languages.

In addition to papers and discussions in the various sections there will be a great international exhibition of every known appliance, illustrating the methods used in the practical handling and treatment of patients.

Special lectures and demonstrations will be given, and a great variety of clinical material will be at hand to illustrate facts and features. The Nashville Academy of Medicine and Davidson County Medical Society will send representatives to this Congress, and it is to be hoped that every County Society in the State will be represented by a delegate.

It would be well for the members of the Committee on Tuberculosis of the Tennessee State Medical Association (see JOURNAL, Vol. I, No. 1, page 23) to avail themselves of this the greatest opportunity ever presented for the study of the best methods for handling this problem, as it is a very pertinent one at this time, in our State.

PHYSICIANS OF UNORGANIZED COUNTIES.

WE are very glad, indeed, to note the fact that the physicians in Macon County have taken steps to organize a county society, and trust others will follow this good example. If you will but make the effort, we feel sure you will succeed, for when you begin to realize the many benefits and great advantages to be derived from a local society, you will wonder why you have not been organized before. Call a meeting of all your county physicians; invite all who are reputable and eligible; perfect an organization by the election of a President and Secretary and Treasurer; notify the Secretary of the State Association, who will send you form of Constitution and By-laws for county societies and proper blanks for reports. Make the start *now*. If you cannot get all the physicians in your county, get all you can; others will come in when they see that you intend to succeed, and then your success is assured. The county society is the door to the State Association and the State Association to the American Medical Association, the ranking medical organization of *America*. Come in, now.

Journal of the Tennessee State Medical Association.

PUBLICATION COMMITTEE:

A. B. COOKE.

GEO. H. PRICE, CHAIRMAN.

M. M. CULLOM

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HERNIOTOMY.

GEORGE R. WEST, M. D., CHATTANOOGA.

THIS subject of inguinal hernia should require much of our attention, because it is a common condition. The statistics of the various countries show that five per cent of the applicants for army service or insurance examination have hernia. It is a condition, then, which is so common as to require careful attention. It has been neglected in the past because surgical procedures have been unsatisfactory in their results. It has been relegated by the regular profession to the instrument makers, to the truss men, and it has been the habit of the majority of you, I think, when a diagnosis of a simple inguinal hernia has been made, to send your patients to the instrument man to have trusses fitted, and thus these patients are relegated to the abominable and vicious idea of wearing a truss the rest of their lives. That should be changed now, because by our modern technic and modern surgical appliances our surgical statistics in regard to the treatment of hernia are so much more satisfactory.

In considering the various treatments, I shall pass over, first, that of the truss, admitting that sometimes by wearing it and setting up irritation, relief is afforded; and I believe that a child, before it is two years old, may get some relief and possibly be cured from the wearing of the truss, and that in some forms of this irritation, there may be a partial cure. But it is certainly unsurg-

ical and unscientific and very unsatisfactory to those I have talked with who have been burdened with a truss for many years.

As to the treatment of hernia by paraffin injections, it has had its day, and it was popular, and as we look back over the statistics we learn that a great many were cured by these injections. A great many things were added that the patient did not possess. It was found that the lump of paraffin produced pain even if it kept the bowel inside the abdomen, and so the statistics regarding paraffin injections are not satisfactory.

The injection of alcohol or other irritants into the sac for the purpose of producing an adhesive inflammation of the peritoneal covering, or hernial sac, has not been satisfactory, because it does not cure enough of the cases, and because it adds uncertainty. Then, too, it is unscientific. Very few men would find a sac in which injections had to be made, and very few would be willing to run the risk of a general peritonitis, and so that treatment is out of the question. With a simple mention of those methods of treatment, we now come to the surgical treatment of inguinal hernia.

I would hesitate to go into the anatomy of inguinal hernia, because I am not an anatomist. If the bowel projects through the internal ring it carries with it a sac of peritoneum, and that may be an acquired or congenital sac. First, let us consider the peritoneal covering of the bowel. We find in the literature for the last decade or so a consideration of this peritoneal covering, the treatment of which is the prime factor in inguinal hernia: that in consequence of a dimple on the peritoneal side, on the under side of the groin, the dimple left there by the descent of the testicle. All inguinal hernias are congenital; that a hernia does not exist and is not produced except in those individuals who in the descent of the testicle have a dimple of peritoneum, so that there is a point of weakness where the peritoneum will project into the already weakened opening of the internal ring. Then, the next covering would be the transversalis, and the next, the internal oblique fibers are more or less different in their attachment to Poupart's ligament, and the foundation of some of the operations has been in the re-application of the internal oblique to Poupart's ligament; that congenitally the internal oblique was not well enough attached to Poupart's ligament to furnish resistance to the descent of the peritoneal sac.

Most of the statistics for inguinal hernia prior to 1890 showed us about thirty per cent of recurrences. With that sort of risk we referred the cases to the instrument maker. But the statistics of today show about one-half of one per cent recurrences. One-half of one per cent has reference to the modern technic, the skill applied or gained by frequent operations, and the use of a proper suture material.

I have looked over the literature and have studied about fifty varieties of operations for inguinal hernia. We cannot go over them all at this time. The best methods are those that have the names of Bassini, Ferguson, Bull, Coley, Kocher, Andrew, Lanphear, Fowler, and such names as those attached to them, and yet the treatment seems to consider primarily the removal of this peritoneal covering of the bowel that gets into the ring. The prime effort, then, in an operation for inguinal hernia is to dispose of this sac. Macewen, who is a very successful operator and has excellent statistics, uses the sac to produce a bumper, as he calls it; instead of producing a dimple or having a dimple on the under side, he makes a knot on the under side and uses the corrugated or wrapped-up sac to make the bumper and prevent the bowel from getting into the ring. From that to all the various other authors we have the different treatments of this peritoneal covering. Bassini and Kocher, and Fowler and Ferguson, amputate the sac. Lanphear and Park use the sac, separate the sac, and thread it on a needle or on a carrier, and pull the rest of the canal together by means of this sac used as an autoplastic suture. Then the method of Bassini, so well known to you all, takes for granted that the canal is already weak, and in addition to the necessity of removing the peritoneal depression and making a cork at the opening into the internal ring, it is necessary to close up the canal. Other operators following that, such as Bull and Ferguson, claim that with accurate, careful work, they can accomplish just as much and get as good statistics with the use of the canal still left patent. Bassini uses the separation of the two oblique muscles and puts the cord above the internal oblique, making a new canal for it. Those who criticise his operation say that hernias occur at the internal ring, and that it is not satisfactory because of the fact that the internal ring is not strengthened. Ferguson uses the old canal, but takes the internal oblique muscle and fastens it above

the ring into Poupart's ligament, increasing the strength by an extra suture.

It would simply consume too much time to go on and discuss the various operations for the treatment of hernia. I want to emphasize the point that the first thing is the treatment of the peritoneal sac and the strengthening of the internal ring, and that the imbrication method of overlapping the oblique muscles and of making a new canal is unnecessary. The next point would be the suture material. I claim that the use of catgut, twenty or thirty-day sterilized catgut, is the most satisfactory material yet recommended. Ferguson and Bassini, I think, advocate the use of kangaroo tendon and say they get very good results from that. A good many of the modern successful operators use needle wire and bury it with great success, making a strong wall, thus successfully preventing a return or recurrence of the hernia.

As to the external incision, the use of a linear incision just above Poupart's ligament from the anterior superior spine of the ilium, or from the external ring down to the symphysis and over the canal is the ordinary method. Ferguson advocates an opening—an oval opening—that comes up higher, that projects in its central part towards the umbilicus and leaving a larger flap, so that fewer blood vessels are wounded. When the incision is made through the skin down to and through the superficial fascia, you take the flap and pull it down with a piece of gauze, you expose the canal and open the canal with the flap pulled down. In this way the skin incision is very much higher than the incision through the muscles.

As to the question of anesthesia, Dr. Mitchell, of Washington, and others, claim that any man who would use general anesthesia in doing a herniotomy is making a mistake; that it is a bad thing to do; that the application of local anesthesia by means of cocaineizing the nerves has no better field than in herniotomy. I have had no experience in that regard. I think we can do no better than use general anesthesia, employing chloroform or ether.

How long shall these patients remain in bed after operation? Some surgeons advocate ten days, some six weeks. The ordinary treatment of two weeks would insure, if the technic has been satisfactory and everything rendered sterile, good union by first intention, and a firm wound.

DISCUSSION OF THE PAPER OF DR. WEST.

DR. JERE L. CROOK, of Jackson:

Mr. President—This is entirely too important a subject to be passed without some discussion. The truss habit has been a stigma on the fair name of surgeons of the world, and the surgeons are perhaps not so responsible for this as are the men who do not do a great deal of surgery, who send these patients to the instrument maker without reference to the advisability or necessity of operation. In the future, a large amount of revenue will be due to the perfected technic of the operation for hernia, and whenever we can convince patients of the danger of the truss habit we have gained a victory in getting them to submit to the knife. The statement I have made was emphasized in my own experience last Friday morning when I received a telephone call at about six o'clock to come to the country to operate on a prominent citizen, who had had a hernia for thirty-five years, which had become strangulated. Notwithstanding the artificial protection of a truss, which he had worn for many years, in attempting to lift a piece of wood he had forced a large portion of gut into the opening and produced strangulation. His family physician tried to reduce the strangulation at about two o'clock the preceding afternoon. The doctor stated that fecal vomiting was occurring; the patient was cold and clammy, and the only chance to save his life was for me to come and operate on him. As I did not want the man to die in my hands after an operation, I refused to go to the country and do the operation, telling the physician that the patient would probably die under the circumstances, and that I would lose my reputation. However, I said that if he would bring the patient to me, I would do what I could; that if I found necrosis of the bowel, I could make a resection with proper aseptic environment. After refusing to go to the country, he brought the man in to my hospital. He was in a bad condition, and as soon as I opened the abdomen I found a loop of intestine four inches long, of a mahogany color. After the constricting bands were cut, and the bowel pulled on the outside, and hot towels were applied for fifteen or twenty minutes, we had the satisfaction of seeing the circulation re-established in the piece of gut that had been strangulated. It was dropped back into the abdominal cavity, and a typical Bassini operation done. The patient had practically no temperature or pain following the operation, and did nicely. It was quite a risk this man ran, but he had not been advised, and had not considered it necessary to have a herniotomy done when he was in good health. I think we should advise all people we come in contact with that have hernia; from the standpoint of risk of their lives to submit to this operation regardless of the fact that it will be a great convenience to do without the necessity of wearing a truss. When the profession advise such a measure to their patients, then operations will be done much more often than they are now, the risk will be much less, and the

patients themselves will feel under obligations to their physicians for getting rid of their trusses.

DR. T. J. HAPPELL, of Trenton:

While I agree with Dr. Crook in what he has said, I must protest against the impression that will be made by his remarks. I do not suppose he intends to convey the idea that he had done exactly right in refusing to go to the country to see this case of hernia, attended with fecal vomiting, because he thought the patient was going to die. He fortunately got a good result by having the patient brought to his place. I do not believe, however, that course should be advised in any case in which strangulation has gone on to the extent of fecal vomiting. I believe we run too much risk. It would have been better for him to have gone on to the house and operated there, as I would do under similar circumstances. If the patient died at the house no more blame would be attached to him than if he had died in Dr. Crook's own institution.

I concur heartily in the statements made by Dr. West, that cases of inguinal hernia ought to be operated on as early as possible, in order that we may avoid such results as mentioned in the case stated by Dr. Crook. The wearing of a truss is a delusion and a snare, and all parties who are wearing trusses are running such risks as have been mentioned by Dr. Crook.

DR. A. G. KYLE, of Knoxville:

I rise in defense of Dr. Crook, and under the circumstances I think he did perfectly right. He said, I have a private hospital; bring your patient to my hospital, and I will operate on him. I will not take the risk of operating on him at his home, where everything is dusty and there is a greater risk of infection. I think Dr. Crook was right in withdrawing from the case when they refused to comply to his demands.

DR. C. J. CARMICHAEL, of Knoxville:

There is an unfortunate phase we must consider in connection with this subject, and that is, the truss man and the instrument maker have succeeded to a remarkable degree in adjusting trusses in cases of hernia. So far as my observation has gone locally, we have very few cases of strangulated hernia, yet we have had a great many patients who suffered from hernia, and in this mountainous section we will find patients who dread the knife to such an extent that they are willing to endure the inconvenience of a truss for a lifetime rather than submit to an operation. We do not have as many patients die from strangulated hernia as from appendicitis; therefore, it is much easier to get the consent of patients to be operated on for appendicitis than it is for hernia. Unless we have some way of educating the public as to the dangers they are running from wearing a truss, we will never be able to succeed as we do in other conditions equally as serious. When we

have patients die as a result of deferred operation for hernia, and until we are able to impress upon the people the seriousness of this condition we will not be able to follow the lines of treatment which Dr. West has suggested. I know of at least seven cases of hernia in my own practice, but I have been unable to persuade any of them to undergo an operation, and until we can convince these patients of the serious results which may come from postponement of operation, it seems to me we will not accomplish what we desire. It is an unfortunate thing that the instrument maker has succeeded so well in satisfying these patients. A great many people are satisfied to wear trusses rather than submit to operation. If Dr. Crook's patient had died from a strangulated hernia, it would have induced many people suffering from hernia to be operated on. It would have its effect to a slight degree as it has whenever we have a few deaths from other diseases.

I believe it would have been worth while if Dr. West had taken the Board of Health reports, especially the death records, and given us the mortality from strangulated hernia where the Boards go into details, giving us a distinction between strangulated hernia and the cases operated on. When people are told that the mortality is high from strangulated hernia, and that there is very little risk from operation before strangulation takes place, it will induce many patients to undergo operation who now rely on the truss maker for relief.

DR. LOUIS LEROY, of Memphis:

I wish to speak of this subject from a general standpoint. If there is one thing above another that medical societies should become a unit in, it is the subject of hernia. Of course, there are a few men in the profession who advise against various operative procedures simply from the effect which they have on patients. One patient will go to a doctor who advises operation; he will talk with another man who advises against operation, and that doctor may be fairly well up in the scale of medical standing, and actually go so far as to make capital out of not believing in operation. I believe that if we desire to do anything in this direction, we have got to stand as a unit with regard to propositions of this kind, so that patients will not go here and there and get a series of conflicting opinions one way or the other on these subjects which are certainly definitely settled.

So far as the truss is concerned, I believe it is the invention of the Devil. It is a menace to every patient who wears one, outside of the inconvenience it causes.

Dr. Crook was exactly right in the attitude he took with reference to the case that has been mentioned, and he should not be open to censure, for the reason the patient was nine miles out in the country, and the operation, if one was to be performed, was necessarily a major one, and he was in a position to give that patient better service and more careful attention at his private hospital than he could have done out in the country.

DR. RICHARD A. BARR, of Nashville:

I think Dr. Carmichael struck the keynote with regard to the position of the truss. The deaths have been comparatively few from wearing trusses. The danger of wearing a truss has been much exaggerated this morning. I do not see how any surgeon or general practitioner, in view of what we see ordinarily, can conscientiously give urgent advice for the performance of herniotomy. I have seen a good many cases of hernia, and I have not been able to convince very many patients suffering from hernia of the advisability of operation. I believe in the majority of instances a truss will be found satisfactory, and while there is a little risk attached to wearing one, you cannot frighten these patients, many of them, into surgery by telling the truth.

Dr. Crook struck another note when he said that herniotomy would probably be in the future one of the most valuable fields, from a pecuniary standpoint, of surgical endeavor. That is a most valid reason, to my mind, for the performance of herniotomy in every case. We have a number of people who are wearing trusses, but it is only occasionally that we have to operate on strangulated hernias. We should not induce people to undergo herniotomy by saying that there is no risk attending the operation. There is more or less risk attending every surgical operation, and when patients find that a truss is satisfactory, they are not willing to submit to operative procedures. From an ideal standpoint there can be no doubt but that man is more perfect without a hernia than with it, but no herniotomy can be done without some risk to a patient's life, and without some risk of recurrence.

I think Dr. West slighted the local anesthesia side of herniotomy. I have not had much experience with local anesthesia in operating for hernia, as I prefer the use of a general anesthetic, but undoubtedly local anesthesia is satisfactory where the patient or surgeon prefers its use. In reducible hernias, where there has been no inflammatory process in the sac, and you expect no great difficulty in liberating the sac, local anesthesia is entirely satisfactory.

The influence of a dimple in the peritoneum as a cause of hernia has been exaggerated. I do not think the peritoneum has anything to do with it. The trouble lies with the muscular portion of the abdominal wall, and not with the peritoneum. The peritoneum cannot offer very much obstruction to the descending viscera. It is claimed that under normal conditions part of the small intestine that has the longest mesentery will only come to the os pubis, and for the occurrence of hernia we must have anatomically an abnormality in the bowel itself, either a long mesentery or a prolapse of the mesentery, a too low attachment of the mesentery, giving opportunity under proper conditions for the bowel to prolapse to a lower point than normally. I believe that this condition of unusually long or prolapsed mesentery is probably the most important predisposing factor in the causation of hernia, and besides this only a weak spot or opening in the muscle of the abdominal wall is essential for it to occur, whether there be a dimple in the peri-

toneum or not. I have had one case of undescended testis with the funicular process open all the way down as far as the testicle, which was situated just outside and above the external inguinal ring, over the os pubis, and yet there was no hernia.

DR. G. E. VAUGHAN, of Clarksville:

I am convinced from what I have seen in one case particularly that there is a decided indication for the truss. Dr. West did not make any exceptions in his paper, but there is certainly a field for the truss in the treatment of hernia. I happen to know a patient who had been advised to be operated on by several good surgeons, but as he got along fairly well with wearing a truss, he was unwilling to be operated on. It seems to me that we ought not to let our zeal for operation and a fee get the better of our judgment in regard to these cases. We ought to treat these patients the same as we would treat the members of our own families. I wish to say in this connection that no less a man than Dr. Crile, of Cleveland, advises the use of trusses in certain cases, and even Dr. Vance, of Louisville, fitted a truss to a patient who has worn it for several years without any bad results.

With regard to local anesthesia, I wish to say that Dr. DeWitt, of Nashville, read an admirable paper on this subject a year or so ago, in which he showed very clearly how cocaine anesthesia could be used to advantage in operations for hernia and in simple cases. Simply because one has had no experience with it, he should not look forward to the idea of improving on it. If we did that, we would never make any advance. While general anesthesia is desirable in some cases, local anesthesia, from what I can learn, will meet the indications in a great many cases.

DR. M. M. CULLOM, of Nashville:

My interest in this question is mainly historical. It seems the profession was confronted with the same proposition two hundred years ago. I was reading an old surgery a few days ago, in which there was a discussion of this subject by Heister, a German surgeon, who flourished about the beginning of the seventeenth century. He related there an instance of being present at an operation on a child, six years of age, on whom the surgeon did a herniotomy. After the operation was over, he took the surgeon aside and said to him: "Why did you operate on that child when it would get along just as well with a truss?" The surgeon replied: "Well, I could have used a truss on that child, but the parents would have only given me \$2.00 for fitting a truss, whereas they will pay me \$25.00 for the operation."

DR. S. S. CROCKETT, of Nashville:

In considering this subject of hernia I fear the relative importance of the two different conditions is lost sight of, namely, a hernia that is strangulated and one that is not. An operator called to see a man with

a strangulated hernia sees that the condition is urgent, and believes that unless something is done for that patient at once he will die. The surgeon who is constantly operating for hernia naturally gets the impression that every man who goes around with a hernia is likely to have strangulation at any time. The importance of strangulation is exaggerated in his mind; that is naturally the consequence of his seeing largely those cases in which this emergency (strangulation) arises. There are certain conditions in which any physician of average intelligence would advise that a hernia be operated on, particularly a case in which strangulation occurs, because he knows that the patient is going to be relieved only by operation. A man with a large, adherent, irreducible hernia is in constant danger, unless operated on. It is quite common to see the condition of very large hernia in a young infant, and it is of doubtful propriety as to what to do for such a case where the hernia is not strangulated. In the irreducible adherent form of hernia in laboring men we can safely advise them that they would be better off if their hernias were operated on. On the other hand, let us take a man who has a hernia held back by a well fitting truss, whose business does not require violent muscular effort, and he may wear a truss all of his life. I expect, if we got a confession from every man in this hall as to whether he has or has not a hernia, and wearing a truss, we might have, at least, a respectable minority.

Another thing: I think our friends, the operators, get an exaggerated idea of the importance of operation in their minds; not only that, they frequently advise operation when it is not necessary. I have sympathy for the man who is going to be operated on for hernia, as well as for the man who wear a truss, for I have worn a truss myself for twenty-two years. I can do as good a day's work as any man with it. I have been going anywhere; I may take chances, but I can run as fast as anybody of my age. I don't believe it is wise to advocate operation in all cases of hernia.

DR. Y. L. ABERNATHY, of Hill City:

In considering the subject of hernia we should bear in mind the great inconvenience which attends the wearing of a truss. That alone in a lifetime means much. These trusses cost a good deal of money; they are constantly wearing out. Hernia prevents a man from getting the benefit of insurance, and from entering the army and navy. The danger which attends the operation on young subjects is very slight.

I have recently had some experience in treating umbilical hernia in children, and I have treated these cases in this way: I simply take a little beeswax, make a hole large enough to put it in the opening, cut it half in two, turn the convex side in, and cover it over with two adhesive strips. It does the work in a few weeks; it never fails to effect a cure. It is an easy, simple procedure.

DR. E. R. ZEMP, of Knoxville:

It seems to me the old family practitioner has been relegated to the woods. I mean by that the public is losing confidence not only in physicians, but in surgeons, and this is due to the fact emphasized by Dr. Leroy, namely, these patients go to one man who advises operation, and then they go to another who says "don't operate." Of course it depends on what class of physicians the patients consult first. If he consults a medical man, the chances are he will advise against operation. On the other hand, if he consults a surgeon, he will urge operation. If there is one class of nihilists, it is those surgeons who do not believe in anything but surgery. They want to annihilate the little motto, In God we Trust, upon the money of today, and this same class of men want to abolish the wearing of trusses by patients with hernias entirely. When a patient comes to you with a hernia, after having made the diagnosis of the variety of hernia, you should endeavor to fit the truss yourself, or take the man to an instrument maker and have him fitted correctly and scientifically, and if this is done the man is likely to live in comfort for many, many years, probably in as much comfort as the man who has been operated on, unless unfortunately the hernia becomes strangulated, which is very rare. If the relations of the surgeon and the physician were more friendly in this matter, a better understanding would be brought about. The surgeon does not treat the physician very often as he should be treated. The surgeon will take complete charge of the case, operate on the patient, get all the honor, and fee, and leave the physician out in the cold. I think more people would be operated on than there are at the present time if the relations of both surgeon and physician were more cordial.

Another thing: The average surgeon will not look at any other method of curing hernia except operation. Personally, I do not believe in the injection method, but there must be some virtue in it, because there are quacks who are curing hundreds of patients with hernia every day by the injection method. When a patient applies to you for advice or treatment, you should consider carefully whether or not the injection method is applicable to his case, and if it is, the man should be given the benefit of that operation, because very frequently the fear of an anesthetic will keep a patient from undergoing an operation. If you can get these patients over that period of fear, many of them will be operated upon who otherwise would not be, but they will not as long as they know they have to take a general anesthetic.

DR. W. A. BRYAN, of Nashville:

Relative to the question of whether to operate or not in cases of hernia, I think a spirit of antagonism has been shown in this discussion which is unnecessary, because it is calculated to make the public feel that we as surgeons are fighting with the general practitioners in regard to the treatment of these cases. The only thing for us to do is to tell these patients the plain facts. When a man has a hernia, he is more

or less handicapped or crippled. We know that his abdominal wall is in a more weakened condition than if he had not a hernia. You can tell a man with a hernia that the wearing of a truss is not only inconvenient, but a nuisance. Anybody who has ever worn a truss will agree to that statement. You can tell him that there is but little danger attending the wearing of a truss; that the percentage of patients who have trouble from wearing properly fitted trusses is very small, but you can likewise tell him about the small mortality from operations. Tell him all these things, let him think the matter over, and decide whether or not he wants to be operated on. That is all a physician can do, and that is all surgeons do. There are not many men in this hall who would do a herniotomy simply for the purpose of getting a \$100.00 or \$150.00 fee. I do not believe the profession of Tennessee is so mercenary as to do that. I believe that most of us in doing a herniotomy would have in view the best interests of the patient, and that we would not operate simply to get his money. A patient should not be told that there is no danger connected with the operation, but he should likewise be told that there is danger without operation. If men will take the pains to study the statistics of operations that have been done for hernia, they will find that there are far more deaths from strangulation of hernias than there are from operations. I have not seen a death from an operation on a case of hernia except in one instance, and in that strangulation had occurred. I have seen one other case of strangulated hernia die without operation, and others that came close to it.

It is better to tell these patients the plain truth about hernia, and so far as scaring them into an operation is concerned, I do not sympathize with that view at all. The proper thing to do is to tell them the truth in a plain, unmistakable way, and let them decide whether operation shall be done or not.

DR. WILLIAM D. SUMPTER, of Nashville:

After listening to Dr. Crockett's remarks in reference to this interesting subject of hernia, I would not dare suggest operation to him. Dr. Bryan has set forth in a very clear and fair manner what should be done, and in my judgment what every man in the medical profession should do is to tell the truth and nothing but the truth to his patients. If Dr. Crockett should see fit to consult any of us surgeons about hernia, it would be our duty to tell him that he can and might wear a truss for a hundred years, provided his intestine does not protrude and become strangulated. On the other hand, there is one thing we should tell him about that can be corroborated by operation and by surgeons, namely, that when an operation is undertaken after many years of truss-wearing, it makes it much more difficult, much more unsatisfactory to effect a radical cure. A patient with a hernia should have the possible danger of an operation explained to him. He should also have the danger of a general anesthetic and the danger of the intestine becoming strangulated.

lated explained to him. These dangers may be slight or great, according to the case and the estimation of the surgeon. We know that a woman will carry hemorrhoids from her first parturition to the grave. She will complain of burning, look sick, pass blood, and undergo inconvenience without making any effort to have them removed, and while hemorrhoids ordinarily are not considered serious from an operative standpoint, yet people have died from operations for the removal of piles.

When Dr. Cullom spoke of hernia, I realized the fact that the ophthalmologist is truly a general student. I regret very much the intimation that we as surgeons do herniotomies for fees alone. I regret that he believes a surgeon will try to induce men to subject themselves to the knife purely to enrich his coffers. I believe, gentlemen, that honesty is the best policy for getting rich. I believe fairness and ethical practice are the best policy for being happy among his confreres. In our city we have a number of men whose vision is not obscured by the possibility of enrichment rather than the good they may do their patients.

As to the dangers of herniotomy, there is this one statement I wish to make: Bodine, according to a former report, did over four hundred herniotomies under cocaine anesthesia without a single death. He has probably done twice four hundred more by this time. When I reported a double herniotomy in Nashville, as having been done under cocaine anesthesia, and remarked that the patient only felt a little pain in passing a stitch through the skin, some of my fellow practitioners not only looked incredulous, but questioned my statement.

DR. M. M. CULLOM, of Nashville:

I just want to say I do not believe there is any man here who thinks that any surgeon would advise an operation for hernia for the sake of profit. That remark was made more in good feeling than anything else.

DR. WEST (closing the discussion):

I want to thank the gentlemen for discussing my paper so freely. I feel very much pleased with the discussion.

I want to say now what I neglected to say, namely, I would advocate that the general practitioner advise all cases of hernia to be operated on. In giving that advice I do not wish to convey the impression, that some of you may have had, of throwing these patients down and operating on them before they get out of the office. It is our duty to place the facts before these patients, and in so doing much will depend upon the case, the age of the patient, the size of the hernia, etc., as regards operation. My principal object was to advocate herniotomy in these cases, but where a truss is thought to be a safer procedure, let it be worn if the patient does not want to undergo an operation. When it comes to surgical procedures, it is a well-known fact that women are

easier to operate on than men. A man will bring his wife to you who has been suffering perhaps from dysmenorrhea and other little troubles, and say: "Yes, Sally, you must be operated on," and the result is that Sally has been forced into an operation, and the husband will go out and take a drink in order to stand the serious situation while the poor wife is being operated on, and after having done a great deal of female surgery, I feel that I am getting back at the men by advocating a procedure which is particularly applicable to them.

If the people are educated to the fact that they can be cured of hernia, and that there is such a small percentage of recurrences, they will readily give their consent to undergo operation. There is probably no more danger attending an operation for non-strangulated hernia than there is the interval operation for appendicitis, yet all surgeons advocate the latter. The man who wears a truss is in danger of strangulation just as the man who has had appendicitis may be in danger of a recurrent attack of the same trouble.

CONSERVATIVE SURGERY IN CRUSHING INJURIES.

JERE L. CROOK, A. M., M. D., JACKSON.

IT has been by privilege several times to present papers advocating conservatism in the treatment of injured arms and legs. One paper on this line was before the American Association of Railway Surgeons, another at the Tri-State Medical Association, and the last was a clinical report at the first meeting of surgeons of the Illinois Central Railway, in Memphis in February of this year. Since that time I have had another case which so forcibly and completely vindicates the correctness of my views on this subject that I have decided to discuss it before this body today. Inasmuch as the clinical report I made before the Illinois Central Surgeons was taken down by a stenographer and has not been published, I will read it now, also my closing remarks in the discussion, and follow with a report of my recent case which is still under treatment:

REPORT.

Inasmuch as I have the privilege of exhibiting a patient in place of reading a paper, I have decided to give a clinical report of this case. Mr. Arch Shuck, of Jackson, Tenn., twenty-eight years old, engineer, has had double amputation of the lower leg with unusual features, and the unusual features in this case will furnish my excuse for taking up a subject with which you are all so familiar as that of amputation.

Mr. Shuck, tell the members present in your own words exactly how this accident occurred; then I will follow with description of the case.

MR. SHUCK: I came into Jackson on my train on the evening of February 22, 1906, and proceeded to take down the flag. At the front of the engine there is a step above the running board by which to reach the flag. I stepped up, then down on the running board, then down on the steam-chest cover, and between the steam-chest cover and the pilot bed, to a step from the main frame of the engine; the bolts of this step were gone, and when I stepped on it, it flew up and I sat down and it threw me forward so that my right leg went under the pony-trucks. I was turned over and the leg crushed off. The front driver then ran over the ball of the left foot, causing it to be amputated at the instep, as you see it.

DR. CROOK: The right leg was simply amputated midway between the ankle and the knee. Mr. Shuck has described to you the manner of the accident, showing you that after suffering the misfortune of having one leg crushed clear off, the other foot was caught under the wheels. He had the great agony of undergoing a similar accident twice in rapid succession, first the right leg being amputated entirely, and later the wheels crushing across the other foot.

On the evening of February 22, 1908, about 11.30, I was summoned from a place of entertainment to see this man. It was a very cold night. When I first saw the patient the wonder in my mind was that he had not died outright. At that time we had no hospital facilities in my town, hence I was not really prepared in the way I should have been for the proper handling of the case. I met the patient at the station, to which he had been brought a mile and a half by an engine. With wonderful forethought on

his part he had insisted on his confreres making a very tight ligature around the leg, which undoubtedly saved his life. The ligatures, made of handkerchiefs, were first applied loosely by his fellows, but Mr. Shuck, realizing his life-blood was flowing away, insisted on a tourniquet and making it tight, therefore he lost comparatively little blood. He was suffering a great deal when I reached him, and was much chilled and shocked from the cold. I had sent my boy to the office to have a fire built, and fortunately I had a gas stove which was immediately lighted, and he was carried to the office. It was some thirty minutes before we could get the room in condition for operation. In the meantime the patient was fairly comfortable under the hypodermic of morphine that had been administered. I did the operation of amputation on the right leg, which requires no description, being simply a circular amputation of the leg. The patient's condition was not as good as it should have been on account of being chilled, so I decided to take the chances of doing a little conservative surgery on the left leg. I explained at the time that I would not, perhaps, be able to save it, but that we could disarticulate that portion of the foot already crushed beyond recognition, use a bruised flap to cover over the denuded area, and at a later time amputation could be done, if necessary, realizing that the only time to save the heel was before it was cut off. The disarticulation was made at the astragalo-scaphoid junction.

In three days the flap sloughed away. The bottom of the heel was sound, and splints were applied to support the heel, and the tendo achilles divided. When the portion of the flap which had been brought up and sutured in front sloughed we had a portion of the os calcis exposed and the articulating surface of the astragalus was entirely denuded, making an area probably an inch and a half by three inches completely exposed, with no skin whatever, and no tissue in front of it at all. He had a few friends, of course, who thought there was no chance of saving it, and they rather insisted on immediate amputation. I told the patient that we had time to try an experiment; that we had a good, sound heel, and if he would leave the case in my hands I would see what could be done. In the course of a week the articulating surface of the astragalus put out very soft, velvety granulations, and in ten days these granulations were followed by a second crop more firm than

the other. Then I began to entertain hopes of salvation of the heel. I asked the patient if he had any friends who would give some of their skin for him, and he said he had some who would die for him. I had seen friendship tested in this way before, and doubted that the friends would show up, but, much to my surprise and delight, at the appointed time he was carried up the steps to my office by five friends who marched in and said, "Doctor, we are ready." And so each one, without flinching, allowed me to take the required skin from the arm. The grafts were laid over the surface in front, and practically fifty to sixty per cent of them lived—at least enough of them lived to form, with the aid we secured from the granulations pushing up from the thick tissue below and those coming down in front, a healthy, firm cicatrix.

You will notice that there is perfect function of the joint, and Mr. Shuck tells me that the heel is of incalculable value to him by reason of the fact that whenever the right leg becomes tired he can with this heel, notwithstanding he weighs 219 pounds, by means of his crutches, get around with this heel supporting his entire body weight.

Another feature of the case is the fact that he had an insurance policy which granted him \$500 for each leg amputated above the ankle, but there was a provision in the policy that if the amputation was deferred for longer than ninety days after the accident, the \$500 would be forfeited. So you can see the position this placed me in: If I waited beyond the ninety days to amputate, my patient would lose the \$500, and in addition to that would lose his limb, consequently it was incumbent upon me to secure the salvation of the limb before the expiration of the ninety days. This was a feature of the case that created some little worry on my part; I did not want to cut the foot off, at the same time I did not wish him to lose his foot and the \$500 as well. While this was a side issue, nevertheless it caused me some anxiety.

Question: You left the astragalus and os calcis?

DR. CROOK: Yes. I simply took off that part which was hopelessly ground to pieces and tried to get a flap in front, which, as stated, sloughed away. The remarkable point about this case is that with nothing but the astragalus and os calcis, the weight of the body can be borne on the heel with impunity.

There are three points in relation to this case which I would like to emphasize. First, the great importance of external heat, a warm, comfortable environment in doing operations immediately following shock. As stated, when this operation was performed, I was in a position where I could not do justice to myself or to the patient, the office having to be heated after the accident occurred. There was an interval of a year and a half between the closing of the old hospital and the establishing of a new one. In building our new hospital we have paid particular attention to the heating of the operating room and the emergency room adjoining, having a guarantee from the hot water company of 80 degrees temperature. This is an extremely important point in railway emergency surgery. Not only during operation, but immediately following, we have to continue our efforts to bring the patient out of shock by hypodermic administration of remedies or the injection of hot saline solution, therefore if after operation you can take the patient into a room with no change of temperature, the chances are better.

The second point brought out by this case is the importance of conservative surgery in the interests of the company, as well as that of the patient. It can be readily understood that Mr. Shuck's claim for damages against the corporation for which he works was very much mitigated by the possession of the heel. The insurance company also had less to pay, which was of small consideration in this case, but might have been greater.

Third, the man whose interest I was trying to serve at the time has a heel upon which to walk, and in this connection I want to speak of skin grafting. There is no doubt in my mind that we do not take advantage of this procedure as often as we should. I am confident that by this means we could in many instances avoid very unsightly scars, not only in cases of burns, but also in all forms of crushing injury where large granulating surfaces are to be covered. Some years ago the subject of skin grafting received more attention than of late, but my experience in this case, having probably sixty per cent success in applying grafts taken from five individuals, over the articulating end of a bone, has convinced me of its great utility in certain cases. The injury was entirely to the distal end of the foot, principally to the scaphoid which I took off, and I tried to save the joint in as perfect a condition as possible. If we can skin graft, as I have done in this case, over the articulat-

ing surface of a bone and secure the results shown in this case, it should certainly indicate to us that it would be well for us to practice this simple procedure more often than we have done in the past. Personally I have received so much satisfaction from this case that I have made it a rule since then to use skin grafting in my practice more often than was my custom previous to that time.

Question: Did you make section of the tendon Achilles?

DR. CROOK: Yes, with a very firm support, bringing the heel straight out. The firm support used, reinforced by adhesive straps, undoubtedly accounted for a portion of the success.

Question: Were the skin grafts used long or short?

DR. CROOK: Some were long and some short. Some of the men I skinned pretty well, and others I did not skin very much, but they all said I was a good garter when I got through.

DR. CROOK (closing the discussion): I appreciate the free discussion, and wish to make only a few remarks in reference thereto. I thank Dr. Johnson for what he said, and also wish to say to Dr. Murrell that all of us do not present the large skin surface possessed by him, and if we started in to give away skin grafts, I fear we would not have much left. I appreciate the discussion of Dr. Lord, in which he shows that he has had some results in skin grafting on bone. Some time ago I read a paper wherein I stated that in amputation of the foot, the foot should be regarded as one bone, and that we should make our amputation without any regard to the articulation of the joint, sawing right through, if necessary, and without special regard to anybody's method. I think that many minds have been clouded by the various names of amputations.

With reference to Dr. Wiggins' remarks about the practice of conservatism, I have never had occasion to regret this practice, because, as stated, the time to save a limb is before it is cut off. In these days of aseptic surgery, we take no chance, and we can do the amputation later on if necessary. I was especially anxious to practice conservatism in the case shown, for he had only one leg left, the other having been crushed off, and if there was ever an obligation to practice conservatism it was presented here.

In regard to skin grafting, I did not think it necessary to go into details about the preparation of the part. All of you understand the preparation necessary to be made for skin grafting.

There is one thing I wish to add to what Dr. Owens has said about bone and mucous grafting. In case of extensive burns, in large hospitals there is an opportunity presented to surgeons when amputation has to be made on another patient to use as large an area of skin as may be desired from the limb that is to be amputated, and I know several surgeons who have utilized this plan. Where the clinical material was great and chronic ulcers existed that needed large areas of skin to cover them, they would prepare the skin below the incision, removing it before amputation, and place it on the chronic ulcer. In that way nobody was hurt, and they saved something that otherwise would have been lost.

Soon after returning from Memphis, on March 7, 1908, I was called at 2 A.M. to meet an engine bringing to town from the lower yards H. B., aged 26, whose right arm had been horribly mangled from shoulder to elbow by an engine. He was crossing the track when struck by the tender and knocked down alongside the track. While lying there parallel with the rail, his arm was caught between the ball of the wheel and the rail, and the skin torn off, together with the triceps muscle and all the subcutaneous tissues, from the outer half of the arm.

The muscles and tissues around the shoulder and back were badly bruised and lacerated, and there was no chance for a flap for a shoulder-joint amputation. I was not long in deciding to practice conservatism in this case, although I knew the issue was doubtful. After thorough irrigation with hot antiseptic solutions, washing out the dirt and cinders, and cleansing the entire arm, the torn muscles were sutured, and the few pieces of skin sutured so as to cover part of the denuded area, and the wound aseptically dressed. For three days the patient's condition was bad—temperature high, pulse rapid and weak, and all the evidences of profound impression from septic absorption.

With stimulants, good diet, and careful nursing in our private hospital, he slowly reacted, his vital powers overcame the septic poison, and his arm began to granulate and throw off the sloughing

tissues. This slow improvement and separation of sloughs continued until the first week in April, when the surface was about free from pus and covered with healthy granulations. On April 7th, just thirty days from the date of the accident, I secured ten healthy grafts from his brother's arm and applied them to the denuded area. On Sunday, April 12th, I removed the dressings and found eight of the ten grafts had taken hold and were in perfect condition. As soon as I can get the necessary skin (which is promised), I shall complete the grafting of the entire area and my patient will have a useful arm.

DISCUSSION ON THE PAPER OF DR. CROOK.

DR. T. J. HAPPEL, of Trenton:

Mr. President—I have known of some of the surgical work Dr. Crook has done in this line, and it has been most creditable. In fact, I know of no one who has done better work in these crushing injuries. This field of surgery should be cultivated in all such accidents. As Dr. Crook has stated, we are all liable to be brought in contact with such cases as he has reported, and the idea of saving these mangled limbs should always be kept fresh in our minds. The first thought which appeals to the mind of the *inexperienced* surgeon is this: Here is a limb that is torn to pieces—with very little hope of saving it, and I want to cut it off. Anybody who has a good knife, and a good saw, can go ahead and amputate a limb, particularly if he has nerve enough to do it, but that is the least part of surgery. If we can preserve these mangled limbs and render them useful to the individuals, we have accomplished something. This should be the object of the surgeon in every instance where it is possible to carry it out.

With reference to skin grafting, Dr. Crook was not put in the same attitude that I was at one time when I had a patient with a large unhealed area from a carbuncle, and no member in the family was able and willing to furnish the skin for grafting, and yet it was either skin grafting or finally death of the patient. While I was not willing to give him large strips of skin, I proceeded to skin graft with small particles of skin taken from my own arm. It hurt a little when I clipped them out, but that patient would not have gotten along as well as he did without this skin grafting process. As I have said, I could not get any skin grafts from any members of the family, so that the grafts were taken from my own arm, and we obtained an excellent result from a number of minute grafts. While we may get quicker and better results from larger skin grafts, we must not forget that we can obtain results in emergency cases by dropping minute particles of skin on the granulating area.

A MEMBER:

Frequently these patients can furnish their own skin grafts. I have seen very successful results by taking grafts from the patient himself.

DR. A. G. KYLE, of Knoxville:

A short time ago Dr. Crook was criticized for being somewhat of a grafted, and I rose to his defense. I will take that back now, because I find he is a first-class grafted, and has done good work along the line of conservative surgery by skin grafting.

As Dr. Happel has pointed out, any man with ordinary ability, with nerve, knife, and saw, and a few ligatures, can do an amputation, but it takes a skilled surgeon to do the work that Dr. Crook has done, and it is a great blessing to the man. Of course, in corporate surgery the first consideration is that of the patient, yet we must not forget the interests of the men who are to compensate this man for his loss and for his injury, and so the surgeon does a twofold good; first, in restoring to the patient a limb of incalculable value. I apprehend that this man would not take anything from the Illinois Central Railroad Company for the stump that Dr. Crook saved for him. While the doctor was reading his paper the thought occurred to me that a great many practitioners in all likelihood would have amputated this limb. Had they not amputated primarily when they saw the bones exposed, they would not have waited to see whether or not they could get healthy granulation, and whether they could skin graft and save this man this valuable portion of his limb.

This is heroic surgery. It takes a man with nerve to do it. He stood in the face of censure hereafter. Provided he had not amputated this man's limb within sixty or ninety days, and would have had to amputate it later, that man would always censure him; every time he saw Dr. Crook he would feel animosity toward him, because he had failed to amputate the limb in time, and that eventually he had to lose it.

I want to congratulate Dr. Crook on his nerve and on his contribution to medical science in making this effort and in achieving the great success he did.

DR. CROOK (closing the discussion):

I have very little to add to what I have already said.

DR. CULLOM:

I would like Dr. Crook to explain the technic of the grafting.

DR. CROOK:

I use by preference the Thiersch method of skin grafting. When I cannot get large pieces of skin, I use the Reverdin method. As soon as I get back home I am going to have some skin grafts taken from my own arm. This is not done with any idea of heroism, but I am simply

trying to obtain the result I have determined to get in saving this arm. I have received four promises from parties who will furnish skin grafts, and I am going to add mine, in order to encourage the others to give skin. I am going to let my assistant surgeon skin my arm so as to set an example for the others. I believe that is going to be necessary to get the result I desire in this case.

THE SIGNIFICANCE OF UTERINE HEMORRHAGE.

L. E. BURCH, M. D., NASHVILLE.

THIS condition is a symptom of many grave disorders, yet its advent is, as a rule, regarded very lightly by the laity, and I regret to say that the profession in the past have not realized its true significance. Many serious maladies are allowed to progress to a point where either the case is incurable or grave surgical problems are presented, which makes the prognosis exceedingly bad. Over ninety per cent of fibroid tumors that end fatally could be saved, and the mortality statistics of uterine cancer could be materially reduced, if the proper appreciation of this symptom had been considered sufficiently early. The large percentage of cases having uterine hemorrhage are due to one or more of the following conditions: Cancer, Extra Uterine Pregnancy, Abortion, Endometritis and Fibroid Tumors. It is true that constitutional troubles, emotional disturbances, menopause, and many other conditions, may bring on this symptom, but these are the exception, rather than the rule. It is a good working basis to remember that nearly every case of uterine hemorrhage is due to some pathology in the pelvis, and by always remembering this, and by excluding the five conditions already mentioned, which are the etiological factors in most cases, much unnecessary suffering can be obviated and many lives saved. Uterine cancer is a disease that carries off many thousands annually. It is universally acknowledged that the only method of treatment that offers an absolute cure is operative. The surgical technique for this opera-

tion is almost perfected, yet no one will claim that the mortality of cancer has been materially reduced. The cause of this is that the disease was not recognized at a time when the cancer was limited to the organ in which it originated. The first symptom of cancer in the majority of cases is an irregular or excessive flow of blood, and yet many go to the point where a cure is impossible, simply because an immediate examination was not made, and the symptom was treated as a condition incident to the menopause. Extra uterine pregnancy is a disease that almost always ends fatally to the fetus, and has a large maternal mortality. Fortunately, there are other prominent symptoms besides a uterine flow that make this condition obvious, yet there are cases that are curedtted with the mistaken idea that the disease is a simple abortion, and many others that are allowed to go to the point where pelvic abscess, internal hemorrhage, intestinal obstruction, or peritonitis, renders the prognosis exceedingly grave. Whenever a uterine flow is present, associated with abdominal or pelvic pain, it is well to remember that tubal pregnancy may be present, and by a careful history of the case, in conjunction with a thorough examination, eliminate or confirm this condition. Simple abortion is rarely mistaken for any other disease, even by the most unskilled, and yet we see in every community cases of abortion that have been treated for endometritis or menorrhagia, and occasionally the disease advances to the state where, either from hemorrhage or sphaemia, the outcome is exceedingly doubtful. Endometritis is the most exaggerated disease in the nomenclature of medicine. Many different varieties are beautifully portrayed in every gynaecological text-book, and the awful havoc that it brings to the patient is fully described, yet I am safe in stating that in not more than twenty per cent of cases is it the sole etiological factor in producing uterine hemorrhages or discharge. It is true that endometritis is not a rare disease, yet in the light of recent investigation, it is exceedingly rare that existing alone it causes much disturbance. The vast majority of cases of endometritis are associated with some other condition that is producing the symptoms, and treatment limited only to the endometrium will have at the best only a temporary effect. This is well illustrated in a paper by Auspach of Philadelphia in which he states that there were three hundred and thirty-seven cases of diseased endometrium

admitted to the University Hospital from October, 1899, to October, 1907, and that two hundred and forty-three of this number were associated with more serious lesions requiring operation. The deduction from this is that before making a diagnosis of endometritis, and treating it as an entity, let our investigations go further and eliminate lacerations of cervix, perineum, displacements, tubal or ovarian disease, and fibroid tumors. Fibroid tumors are the most frequent of all uterine growths. According to Bayle, they are present in twenty per cent of all women who reach the age of thirty-five, but of this number the great majority are small. They are non-malignant tumors, in the sense that they do not invade the contiguous structures, yet when they advance to the point of producing symptoms, on account of the likelihood of degenerations that may develop, they are exceedingly dangerous growths. The old theory was that a fibroid tumor, after the menopause, atrophied and caused no further trouble. This theory, however, has been disproved, and we now know that fibroid tumors not only postpone the menopause for five to twelve years, but that it is at this very time that degenerations are most likely to occur. Bland Sutton says the dangers of fibroids are materially increased after the menopause, and that the attending physician can make no greater mistake than to promise his patient a restoration to health after the change of life. In a recent article Tracy has very carefully analyzed three thousand five hundred and sixty-one cases of fibroid tumors. He showed that a large percentage undergo some form of degeneration, and what is still more startling, that 64.9 of degenerations occur after the fortieth year. What makes this tumor still more dangerous is the fact that the complications and degenerations are not limited to the tumor itself, but become general in character. Boldt, in a series of seventy-nine cases, found circulatory disturbances in forty-seven per cent. Renal and bladder disturbances are not usual with this form of tumor. My only object in calling attention to the degenerations and complications of fibroid is to impress the value of an early diagnosis. Although we do see fibroids of large size that are not associated with uterine hemorrhage, yet in the large percentage of cases the first symptom is a menorrhagia, which in time is associated with a metrorrhagia. I do unhesitatingly say that any fibroid tumor that produces symptoms should be removed, irrespective of age. It is

not in the scope of this paper to go into details concerning the five conditions mentioned, but as all of these conditions are frequently met with at the bedside, and as all are associated with uterine hemorrhage, it was deemed best to consider them in a brief way. While it is true that cases of uterine hemorrhages do occur that have no pelvic pathology, this occurrence is rare.

In conclusion, I desire to emphasize the following: That every case of uterine hemorrhage should be subjected to an immediate vaginal examination, that the vast majority of cases having this symptom are due to pelvic pathology, and that by carefully considering cancer, extra uterine pregnancy, abortion, endometritis and fibroid tumors, and then by a process of exclusion, a correct diagnosis can usually be made. When pelvic pathology is discovered it is generally necessary to resort to surgery to effect a cure.

DISCUSSION ON THE PAPER OF DR. BURCH.

DR. W. D. HAGGARD, of Nashville:

Mr. President—I regard the paper to which we have just listened as a most important contribution. It is exceedingly concise and well put, and I think we would be very much improved if we would take its lessons to heart.

The first thing that impressed me was the matter of suspecting uterine cancer from hemorrhage. Wherever a uterus, particularly after the menopause, is the subject of any bleeding whatsoever, we should never be content until we have eliminated the possibility of malignant disease of the cervix. This is true in women who have a small amount of bleeding. If a woman has between her monthly periods spotting or drops of blood on her clothing after exertion of any kind, especially from intercourse, it may be indicative of beginning malignant neoplasm from an abrasion that causes the hemorrhage. I have learned to regard this symptom of "spotting" which the patient describes as most important in the significance of cancer after the menopause.

In reference to the hemorrhage associated with ectopic pregnancy, I will say that after a missed or delayed period, whether a woman believes herself pregnant or not, associated with a mass, not very tender, either to one side or behind the uterus, the suspicion of ectopic pregnancy should be seriously entertained. The hemorrhage is of a fitful character, almost daily, slight, but continuous, occasionally coming in a splash, but often significant of the condition of the decidual cells being desquamated after the rupture has taken place.

I recently had a woman who conceived eleven months prior to the time I saw her, and at the end of about nine weeks she had syncope. However, the abdomen continued to increase. She believed herself

pregnant. At the end of six and a half months motion ceased; the abdomen went down in size, but synchronous with the cessation of motion in the abdomen she began to flow fitfully, and then continuously, and daily for a period of twelve weeks. At the termination of that time she became septic, and was septic for seven weeks. We found the uterus normal in size, and an enormous abscess as large as a five month's gestation. Ectopic pregnancy was diagnosed, vaginal section was done, a great quantity of the most offensive pus evacuated, and a dead fetus, six and a half months advanced, was removed through the vagina, with obstetrical forceps, out of a large puddle of this purulent material. The patient recovered.

The point of interest in the case was that after the death of the child the woman began to bleed, and bled continuously, she having a discharge of the decidua which nature had placed in the uterus through the circulatory changes. The moment the placental circulation stopped, the decidua which nature put in the uterus as a nest for the fetus, was discharged, and she desquamated it just as she does normally with the monthly period. So I think hemorrhage in connection with ectopic pregnancy is most important.

In reference to fibroid tumors of the uterus, I would say that there is only one class that does not produce hemorrhage, and that class is the large tumor that is attached to a small uterus with a pedicle. I recall one case in which a tumor of thirty-five pounds weight was attached to a normal uterus with a pedicle about the size of three fingers. This woman never bled over three days at the monthly period. The tumor gets its blood supply from the omentum, and the veins become as large as fingers. If the tumor does not interfere with the circulation of the endometrium, you do not have any hemorrhage. I agree with the essayist that all neoplasms of the uterus, when they produce any symptoms, should be removed.

DR. RICHARD A. BARR, of Nashville:

I agree with Dr. Haggard as to the general excellence of Dr. Burch's paper, as it is not only timely but important. The point which Dr. Burch emphasized in regard to the menopause being no protection to a woman with uterine fibroids is an important one indeed, because the profession has been educated to believe that the menopause makes a very important change in the prognosis, and the probability of trouble arising from the presence of a uterine fibroid or fibroids. I have had two cases recently of degenerated uterine fibroids, the women being from five to ten years beyond the menopause, in one of which the degeneration had progressed to the point of the tumor bleeding into the peritoneal cavity. I believe it is the only time I have ever seen a condition like that. I found blood free in the peritoneal cavity as the result of the breaking down of this uterine fibroid.

Dr. Burch made one statement, which was emphasized by Dr. Haggard, with which I do not altogether agree, and that is, a woman, the

subject of any kind of uterine growth which gives rise to symptoms, should have it removed.

DR. HAGGARD:

I had reference to fibroid tumors.

DR. BARR:

That limits it more accurately than the general statement of uterine growth. I know several women who have been the subjects of uterine fibroids which gave rise to symptoms of hemorrhage, pelvic pain and discomfort, who have raised families in spite of that fact. There is no doubt that many women with fibroid tumors of the uterus giving symptoms, bear children, and I do not think that the risk of a uterine fibroid is sufficient to take away from a woman the opportunity of having children on account of the danger from such growths. Whenever these tumors undergo changes of a serious nature we should interfere, but the percentage of such cases is small, and in ninety-nine cases out of a hundred operation carries no more risk at that time than if done earlier. It is pretty radical advice to say that every woman with uterine fibroid that gives rise to symptoms should have an operation, which usually means, of course, hysterectomy. There are few cases, I think, in which myomectomy is indicated, and sometimes even in those cases in which we feel on examination of the uterus, or after opening the abdomen, that myomectomy would be satisfactory, we find out later there were smaller tumors in the uterus which gave rise to the trouble for which we operated, and the growth we removed was not the cause of the trouble. If we are going to feel safe in operating for the removal of uterine fibroids we have to do hysterectomy, and we cannot afford to advise hysterectomy in every case of uterine fibroid. I think that is too radical entirely.

DR. W. D. HAGGARD, of Nashville:

I do not think Dr. Barr's position is well sustained by the majority of men at the present time. If we know one thing better than another, it is that it does not profit a woman to carry a fibroid tumor around in her economy. Maurice Richardson chose this as the subject of his address before the American Surgical Association in 1905, and this is his statement, which ought to be the highest opinion from the surgical supreme court of this country, that "any neoplasm, wherever situated, should be removed as soon as detected." It is unwise to advise suffering women not to have these tumors removed. It is a mistake. The percentage of women who are sterile from carrying fibroid tumors is given as eighteen per cent. The future surgery of the pelvis will be to conserve the uterus, but remove the neoplasms, and, therefore, I think, the earlier it is done the safer it will be for the patient. Dr. Burch has laid stress on the fact that these neoplasms are not only prone to myomatous and calcareous degeneration, but they lead to

degeneration of the circulatory system, to brown atrophy of the heart. Not long since I put a woman on the table for the purpose of removing a huge fibroid, and while the anesthetic was being administered the heart failed from brown atrophy before we touched her in a surgical way. I claim that if that woman had been operated on long before this happened she would have been alive.

I have seen cases of neoplasms of the uterus in which the fatal advice was given to wait until the menopause, but the women unfortunately died subsequently of malignant disease. When a woman begins to bleed, has pain, has general disturbances, etc., I agree with Dr. Burch most emphatically that she should be given the benefit of conservative early removal of the disease.

DR. RICHARD A. BARR, of Nashville:

As I came in I inferred that Dr. Haggard was making an argument in favor of operating on every case of uterine fibroid, and referred to some one (Richardson) as having given a presidential address on that subject. Now, personally, I would not attach any more importance to such advice because it was given in a presidential address, and I say that with all due respect to our presiding officer, than I would had it been given at any other time.

Dr. Haggard says that eighteen per cent of the cases of sterility in women is due to fibroids, and that this is an established fact. Dr. Burch, in speaking of the frequency of fibroids, quoted some one as saying that twenty-five per cent of women have uterine fibroids, if I understood him rightly, and Dr. Haggard says eighteen per cent of the cases of sterility are due to utrine fibroids. I believe one marriage in ten is supposed to be sterile. If fibroid tumors are present in twenty-five per cent of women, while only one marriage in ten is sterile, and no more than eighteen per cent of these cases of sterility is the result of uterine fibroids, I do not think Dr. Haggard's contention holds good. His statistics do not bear him out.

The distressing case Dr. Haggard reported of a woman having died as the result of not having had an early operation for uterine fibroids cannot be taken as an argument for advising surgery in every case of uterine fibroids that gives rise to symptoms, though any of us are likely to have cases of that character. I do not believe it is wise to advise a woman that because she has symptoms of uterine fibroid she should have either a hysterectomy or a myomectomy done. It depends upon the character of the symptoms. If a woman has been sterile for years, as the result of uterine fibroid, you can advise her, if she has symptoms, to have her uterus removed. But not infrequently a woman who has had children will come to us having symptoms of uterine fibroid. The position of the fibroid, the probability of it interfering with pregnancy, and with a successful labor, causing dystocia, will decide whether we advise our patients to have surgery done or not. It is just the opposite of conservatism to make a general statement that

a woman who has a fibroid tumor giving rise to symptoms should have surgery done.

DR. BURCH (closing the discussion) :

I rather regret the direction the discussion has taken. I was especially anxious to hear from the medical side. When a surgeon presents a paper to a mixed audience it is rather difficult to select a subject that will interest the medical man, and in selecting this topic, I thought I had presented one that was frequently met with at the bedside. I think uterine hemorrhage is as common as a bad cold, or pneumonia, or malaria, or anything else, and for that reason I brought this subject before you.

What I especially wanted to emphasize was the importance of uterine hemorrhage, and whenever such a case comes up, that woman should be immediately subjected to a pelvic examination. The great majority of cases of uterine hemorrhage are due to pelvic pathology, and if pelvic pathology is present, it is usually due to one of the five conditions mentioned—cancer, fibroid tumor, extrauterine pregnancy, endometritis and abortion. Now, then, if every woman who has uterine hemorrhage is examined, and then by a process of exclusion a correct diagnosis can be arrived at, and such cases will not go on until they present dangerous surgical problems.

In regard to the discussion between Dr. Barr and Dr. Haggard, I know, they both have the same ideas about fibroid tumors. But fibroid tumors was not the subject of my paper. In a large percentage of the cases of fibroid tumors that present symptoms the women are sterile. Again, in the great majority of cases these tumors do not cause symptoms until after the thirtieth year of age. There are exceptions to all rules, and I perfectly agree with Dr. Barr that if a fibroid tumor appears in a woman, twenty-two or twenty-three years of age, and is only causing an occasional slight hemorrhage, it is all well and good to watch the case, and if she wants to keep the tumor and try to have a child, all well and good. The thing I wanted to emphasize was that the condition should be diagnosed, and if we diagnose the case, we can watch it, and if symptoms should arise sufficient to warrant operation, the tumor should be removed. To make it a safe rule, I believe the majority of fibroid tumors that cause symptoms should be removed. Of course there may be exceptions to this rule.

PURULENT OPHTHALMIA—PATHOLOGY AND TREATMENT.

M. M. CULLOM, M. D., NASHVILLE.

IN undertaking to discuss the pathology of purulent ophthalmia, I had considerable difficulty in finding any authoritative literature on this subject. The work of Bumm, who studied the conjunctiva of infants infected with gonorrhœal ophthalmia seems to be the only reliable data.

The first point of invasion is in the superficial epithelial layers. Having gained a foothold, the gonococci penetrate between the epithelial cells into the protoplasmic substance. The cocci themselves are the active agents in attack and penetration, and are not enclosed in pus cells; active participation by the pus cell not being observed. In all cases the road traversed by the gonococci is through the cement substance between the cells. When they reach the subepithelial tissue, reaction on the part of the tissue occurs. The capillaries become greatly dilated and serum loaded with white blood cells escapes in great quantity. This is the beginning of the pus discharge. The stream of pus breaking out carries away epithelium in small and large plates. The removal of the epithelial layer permits the further invasion of the cocci down to the papillary layer where the process stops. While this is going on, a dense, round-celled infiltration takes place beneath the mucous membrane, which, together with the exudation of serum and white blood corpuscles, accounts for the dense swelling of the lids and chemosis of the mucous membrane.

Resolutions takes place by regeneration of the epithelium, which begins sometimes as early as the twelfth day. Healing takes place not by elimination of the germ, but by the formation of a protective covering of squamous epithelium in several layers, which closes all inlets against further invasion. Pus breaking through may cause gaps in this protective coating, thus allowing ingress for a fresh invasion and accounting for the relapses which sometimes occur.

The reaction of the tissue is in direct proportion to the virulence of the infection. It is thought that this explains the difference in severity between purulent ophthalmia in the adult and ophthalmia neonatorum, the discharge in the vagina of the mother usually being a more attenuated virus than that with which eyes of adults are infected.

So far, we have discussed the pathology of the mucous membrane, but the pathology in which we are vitally interested is that of the cornea. For upon our ability to preserve its structures intact depends the salvation of the patient's sight. Corneal pathology shows itself in the form of ulceration, which may result from two causes—that of infection by the offending germ or a necrosis as a result of pressure.

The swelling of the lids and conjunctiva may be such that the nutrition of the cornea is cut off and necrosis of the tissue follows with rapid destruction of its substance; or an abrasion of the epithelium caused accidentally in handling the eye or from maceration by the pus in which the eye is bathed may give access to the swarm of germs. In either case, the formation of an ulcer generally presages the loss of the eye, and knowledge of this fact gives us the keynote in treatment, which I believe to be the cleansing and disinfection of the eye and use of all possible means to reduce the swelling.

The most important thing in the treatment of purulent ophthalmia is the early recognition of the disease, and the prompt institution of remedial measures. There is one thing of which we need not be afraid, and that is of treating a suspicious eye too vigorously. We must remember that we are dealing with a dread and treacherous enemy; one that has caused more blindness than any one agent in the world, and if we even suspect that we are in the enemy's country, we must ride with our arms at ready and fire at the slightest indication of danger.

If we are in doubt in the beginning, we will not remain so long, and the time we have saved by early and vigorous treatment may save the eye.

The first thing to be thought of upon recognition of a case of true purulent ophthalmia, is the patient's ability to command service. If the patient's means permit, two trained nurses should be secured, one for the day and one for night duty. If it is not pos-

sible to secure trained help, then the members of the family must be instructed in the proper care of the eye.

The first precept to be inculcated is that the eye must be cleansed of pus as often as it makes its appearance, whether it is every five or every thirty minutes.

The cleansing must be done with a solution which is bland and unirritating. The writer has found that these conditions are best fulfilled by a warm solution of boracic acid.

The attendant is given a quantity of boracic acid and instructed to dissolve a tablespoonful in a quart of boiled water. When it is required to use the solution, a quantity is added to an equal quantity of warm water sufficient to cleanse the eye. The manner of cleansing, which I have found safest and most efficient in using untrained hands, is by means of the little rubber ball syringe, commonly called the ear and ulcer syringe. It has a soft rubber tip, which will not injure the delicate structures of the eye. The attendant is instructed to gently separate the lids with the fingers of one hand, and with the other syringe the eye without exerting undue force. If the patient is an adult, he is instructed to look up, down, and to the sides so as to bring successive parts of the eye into the field. It must be impressed upon the attendant repeatedly that all manipulations of the eye must be done with the utmost gentleness. Nowhere is delicacy of touch more essential than in handling a swollen and inflamed eye, where the least awkwardness may give rise to any abrasion of the cornea with a resulting ulcer and ultimate destruction of the eye. For the same reason, the attendant should never be permitted to wipe the discharge from the eye with cotton or anything else. That should only be attempted by the physician, and that with the utmost care, guarding the cornea from contact with any foreign substance, except liquids.

The attendant should confine herself to removing the discharge by means of the syringe and to wiping the outside of the closed lid with cotton. Of equal, if not supreme importance, in the treatment of the disease, is the use of the newer silver salts. The two, which I have used most successfully, are Protorgol and Argyrol. My first experiences were with Protorgol and were most happy, but for many years now, I have used only Argyrol, finding it equally efficacious and absolutely unirritating. The attendant is given a

ten per cent solution to drop into the eyes every two hours after having previously cleansed the eye. Five or six drops are used at each instillation. It is absolutely essential that the solution should be fresh, as, on account of its organic composition, it deteriorates on standing.

As an adjunct to the treatment of this disease, I am a firm believer in the use of cold applications. Like all other methods of treatment, it has to be used with sense and judgment. The reduction of the swelling and the grateful comfort of the patient will show you that it is doing good. If the cornea becomes involved, its use is discontinued. Some physicians very much fear it and think that its use is contra-indicated. I think that the use of cold is both rational and scientific. The three things necessary to the propagation of germs are suitable media, heat and moisture. The mucous membrane of the eye furnishes an admirable medium for the culture of the gonococcus, the moisture is ever present, and the inflammation arising from the infection furnishes an abundance of heat. We cannot dispense with the mucous membrane, and we cannot get rid of the moisture, but we can influence the production of heat, and by just so much as we lower the local temperature, be it ever so little, by just so much we inhibit the growth of the gonococci.

The method of applying cold, which I have found most practical, is by means of the cold cloths. A piece of soft cloth, preferably an old towel, is torn into strips so that when each strip is folded it will make a pledge about an inch and a half square, and four layers thick. About eight of these pledges are laid on a block of ice until thoroughly cold, and then one is placed on the eye and allowed to stay a quarter of a minute, when it is replaced on the ice and a fresh one applied. The pledge must not be allowed to remain on the eye more than ten or fifteen seconds, as it rapidly becomes hot, and would soon act as a poultice. The length of time the application of cold should be kept up and the interval between, depends entirely upon the amount of the swelling and the virulence of the infection. Where the swelling is very great, the application should be almost continuous, limited largely by the capacity of the nurse. In cases of moderate severity, it should be applied an hour and left off an hour. The point toward which all our treatment is directed, is the integrity of the cornea. It is at once the object of our solic-

itude and the index of our skill in treatment. Should corneal complications occur, they should be treated as any other ulcer of the cornea, by instillations of atropine or eserine and cauterization.

The physician should see the case at least once a day, when he should carefully inspect the cornea, personally cleanse the eye and apply a twenty-five per cent solution of Argyrol to all parts of the conjunctiva.

The above measures constitute the tools of the workman. Himself must furnish the skill and judgment so necessary to their proper use. For there is no disease of the eye, which puts a greater tax upon his vigilance or makes greater demands upon his resources. For it is no mean foe that we confront, but one worthy of our best skill. For with all the vigilance we may exercise, and all the skill we may command, there are times when we will have to go down in defeat. There are infections of the eye so virulent that nothing seems able to stay their course. I have seen eyes lost in twenty-four hours in spite of the most vigorous treatment. Such cases are fortunately uncommon, and early rational treatment will nearly always save the eye.

I will add, that no case of ophthalmia neonotorum should be lost if seen before ulceration of the cornea has set in.

DISCUSSION ON THE PAPER OF DR. CULLOM.

DR. GEORGE H. PRICE, of Nashville:

Mr. President—Dr. Cullom has given the pathology of the subject under consideration, and as the question of treatment is the most important, I will direct attention to that.

There is no disagreement between Dr. Cullom and myself as to the general procedure in cases of purulent ophthalmia, and by that I mean ophthalmia of gonococcic origin. The process of cleansing is one of the most essential, and yet it is not infrequently one of the most difficult procedures to carry to a successful termination. The increased swelling and tension about the eyes, the profuse secretion at times, the inability of the patient to look after himself, the difficulty sometimes in securing a properly trained assistant for the purpose of giving the patient the necessary attention, bring about a serious train of consequences and complications, and it is for the purpose of combatting these, so far as possible, that minute detailed instructions have to be given. If a patient of this kind comes before me for treatment, and has not the facilities at home for proper care and attention, and his financial condition is such that he cannot employ a trained nurse or nurses, as the case may be, the best thing to do is to put that patient

in a hospital where he can have the necessary attention, both day and night, because not infrequently for several days, after the condition has progressed for twenty-four or thirty-six hours, it is difficult to check secretion immediately. I do not know that the doctor called special attention to the fact that the use of remedial agents in this condition should be begun at once. It has been customary for practitioners who treat these conditions to postpone the use of silver salts until the appearance of the purulent secretion. They prefer to wait until they have a purulent condition to deal with. My own opinion is that if we have at hand the necessary agents for combatting purulent inflammations about the eye, for cutting short and destroying the propagation of the micro-organisms that are producing the inflammation, we should begin the treatment of such cases at the earliest possible moment with those agents that are most reliable. For this purpose many men believe the nitrate of silver is best suited, and it has been used universally in the treatment of purulent ophthalmia. The only objection to the use of nitrate of silver is that it produces a coagulum upon the mucous membrane which must be exfoliated before you may make another application for the purpose of reaching the micro-organisms which lie lower than upon the immediate surface. For this reason, I believe it is best, if we are going to use nitrate of silver solution, or in addition the other silver salts, to adopt the plan suggested of using the nitrate of silver, neutralizing its excess with saline solution, washing off the coagulum formed upon the mucous membrane, opening up the mucous membrane to the efficacy of the treatment by some other silver salt which is more penetrating and less painful. My experience is that protargol is the most reliable. I have used argonin, argyrol, and protargol. Argonin is painful, as is argyrol, but protargol is not painful. Some patients will complain of protargol, but a large majority of them will not.

DR. H. H. McCAMPBELL, of Knoxville:

While this is largely a subject in which specialists are interested, yet there is one point I desire to make, and which was not mentioned in the paper, namely, where the ophthalmia is confined to one eye, it is very important to protect the uninfected eye. This can be done in various ways. One of the best ways, I think, is to cover the eye with some transparent substance. In this way you can prevent infection of the second eye.

DR. L. B. GRADDY, of Nashville:

Unfortunately, I did not hear the paper, but I understood the subject to be purulent conjunctivitis. I shall have to confine my remarks very largely to what I heard, and I came in just in time to hear what Dr. Price had to say about protargol. Protargol is a very light, if you please, disinfectant, or destroyer of pathogenic organisms. Just what length of time is necessary for the exposure of protargol for the de-

struction of the gonococci, I do not know. But nitrate of silver, in two per cent solution, destroys the gonococci in eight seconds. In the treatment of purulent conjunctivitis of a specific character, we should direct our treatment in such a way as to bring about the best possible results. It should be remembered by everyone that gonorrhea of the eye is identical with gonorrhea of the urethra or the vagina. I do not think there are more than one or two present who heard me on a previous occasion say there was hardly any individual bold enough to say that he could cure gonorrhea. In other words, it is an absolutely incurable disease, and our effort should be directed toward modifying the severity of the symptoms, so that the least possible amount of destruction may be done.

Two or three years ago nitrate of silver was very strongly advocated by a member of this society, who contended at that time that a two per cent solution of nitrate of silver would cure gonorrhea in three days. I do not know whether he holds that doctrine now or not. Protargol, in forty grain solution, will cure it, it has been said, but the truth of the matter is, nothing will cure it, and if we understand the pathology, we should not expect to cure it. When the gonococcus comes in contact with the conjunctiva, the urethra or vagina, within a few hours the epithelial interspaces are attacked, and the gonococci in their passage meet with white blood corpuscles, which are converted into pus corpuscles. These loosen the epithelia, and it is cast off, and as soon as that is cast off the deeper epithelial interspaces are attacked, and the infection is complete, so that such a thing as aborting gonorrhreal conjunctivitis is not possible. After the infection is complete, nothing can destroy the organisms without destroying the tissue. This idea of aborting the disease gave rise to the treatment in the latter part of the 1850s and the early part of the 1860s of gonorrhea, which consisted of injecting into the urethra from sixty to one hundred and twenty grain solution of nitrate of silver. That was continued once or twice, or three times a day, until the urethra bled, and then the disease was said to be well. But all relapsed. No one knew the pathology of the disease at that time. But now we know such a thing as aborting it is not possible, and we also know that neither protargol, nitrate of silver, argyrol, nor any other astringent, will cure it—will destroy the germs without destroying the deeper tissues when infection is complete.

DR. E. R. ZEMP, of Knoxville:

There is one point Dr. Cullom failed to mention—that is, all cases of purulent ophthalmia should be referred to a specialist. The general practitioner has no business treating these cases. It requires an expert, a man who is skilled in the changes that take place in the eye, and the complications of this trouble, and I have no doubt that some eyes are lost on account of the fact that the general practitioner does not recognize the changes that are taking place, and almost before one knows it, the eye is lost. Sometimes within twenty-four hours after the infection

the patient is blind. In other cases the infection continues longer, but eventually terminates in the same way, and the general practitioner may be led into error, thinking that the case is getting on nicely when blindness occurs in one eye.

I could never understand why the average oculist was so fond of boric acid. It seems to be a hobby with many oculists. There is no virtue in boric acid as a germicide. One might as well put any inert substance in the eye. It is dangerous. It creates within one's mind a feeling of false safety, and makes one think that he is using a germicide when he might just as well be using water. Boric acid is not a germicide, but merely an antiseptic.

DR. E. H. JONES, of Murfreesboro:

I want to compliment the essayist on his paper, and rise to ask whether he mentioned the use of belladonna in treating some of these cases?

DR. CULLOM:

I mentioned it in cases of ulceration.

DR. JONES:

We are liable to create a false impression on the part of the patient and friends if we do not do certain things. Dr. Zemp has just said that there is very little virtue in using boric acid, but it has the appearance of doing something when we use it, and it is not for the purpose of disguising the fact that we are not doing what we should do.

DR. C. M. CAPPS, of Knoxville:

There are two points to be considered in connection with cases of purulent ophthalmia, and one is combatting the germ, the other is the prevention of complications or corneal ulcers. We all recognize, I think, that gonorrhreal ophthalmia is incurable. There is no known remedy that cuts short this disease when fully established, and I agree with Dr. Graddy in what he said in that regard, and the essayist agrees with him. But we want to prevent complications in connection with this infection. The greatest danger is corneal ulceration. More eyes are destroyed in this than in other ways by gonorrhreal ophthalmia, hence it is important in the earliest stage to lessen inflammation as much as possible. The essayist left out one point I wish to emphasize, and that is applying leeches to the temple for the first twenty-four or forty-eight hours to reduce the inflammation in the eye. That is of considerable benefit. Ulceration is brought about usually in the cornea by a too strong solution of nitrate of silver or some other corrosive agent.

As to the treatment of these cases by protargol, argyrol, and nitrate of silver, I want to express myself as being thoroughly in favor of using a two per cent solution of nitrate of silver. Early in the stage

of inflammation of the eye, say the first twenty-four or forty-eight hours, if you want to use protargol or argyrol, it is well to employ it because you get less reaction. Hence, in the early stage I would use protargol in ten or twenty per cent solution, and with this you would get practically no reaction, but when you get a discharge of pus thoroughly established, and the inflammation gone down to some extent, use two per cent solution of nitrate of silver. I would use it as often as necessary, two or three times a day. While I might use some other antiseptic, my preference has been one to ten thousand bichloride of mercury, washing out the eyes every five or ten minutes, or as often as pus accumulates. The principal thing is to keep pus out of the eye to prevent further infection. If you get corneal ulcer, it may develop in a few hours. One physician has aptly expressed the condition of corneal ulcer as similar to a hot knife going through butter, so that the patient is blind forever. It occurs in a few hours. Atropine in these stages is useful to keep down the intraocular pressure. We use leeches for the same purpose in the early stage. We do not want to increase the pressure of the eyeball.

The essayist spoke of cold applications; I do not take kindly to such applications in inflammatory conditions of the eye, as I believe we disintegrate corneal tissue with a cold compress. We want the corneal tissue to remain healthy and the circulation through the corneal tissue as free and good as possible. Cold compresses lower the vitality of the cornea, and, in my opinion, increase the danger of corneal suppuration.

DR. WILLIAM LITTERER, of Nashville:

Dr. Cullom is to be congratulated upon the thoroughness with which he went into the discussion of the pathology of this condition. I had occasion some time ago to look over the literature for the purpose of finding something with regard to the pathology of gonorrhea. I was surprised to find so very little given pertaining to it. Most works on pathology only mention a few lines, dismissing the subject by stating that infection is caused by the entrance of the gonococci through the cement substance of the epithelial plates. Gonococci will not grow unless there be a temperature of at least thirty-seven degrees C. If you produce a temperature below that point (I am speaking now of artificial cultivation)—that is, below body temperature in the incubator, they will cease to grow. The gonococci are very fastidious, requiring for their best media the human blood agar. I have treated a number of cases of chronic gonorrhea with the Gonococci Vaccines with some apparent success, especially when the Autogenous vaccine is used.

With reference to the remarks made by Dr. Graddy, when he stated that purulent ophthalmia was caused only by gonococci, I will say that there are many other germs, for example the Koch-Weeks bacillus, the Morax-Axenfeld bacillus, etc., that will produce a purulent condition of the conjunctiva. A few years ago I had my right eye infected with

an organism which I had discovered as a new species belonging to the Mucosus Capsulatus group. In my case it produced not only a very violent inflammation, but pus. There are many other germs that will produce purulent conjunctivitis other than the micrococcus gonorrhœa.

DR. G. E. VAUGHAN, of Clarksville:

Dr. Cullom left out a most important part in regard to treatment, namely, to advise people who have gonorrhœa to be careful about infecting their eyes. Not infrequently we hear of people becoming infected through water closets and towels. I know of one man who lost an eye from using a towel in a public place that had been previously used by a patient who had gonorrhœa.

I do not think the solutions of argyrol are strong enough to be effective. In my practice I use a fifty per cent solution.

As to whether gonorrhœa can be cured or not, I do not know, yet I have seen some of these cases quiet down in the course of a week or ten days under the use of a fifty per cent solution of argyrol.

DR. L. B. GRADDY, of Nashville:

I do not know on what ground one of the previous speakers (Dr. Zemp) based his assertion that ophthalmic surgeons relied on the use of boric acid. We know there is very little or nothing in boric acid of therapeutic value. It is an antifermentive, and as such does a great deal of good in the class of cases under discussion.

In my previous remarks, when I used the word purulence, I meant *purulency*, and not a semi-purulent condition. Of course, as Dr. Litterer has said, semi-purulent conditions may be caused by the different organisms he has mentioned. Speaking of a two per cent solution of nitrate of silver. It will destroy the gonococcus without the possibility of its reproduction, in eight seconds. A solution of bichloride of mercury, 1-1,000, will destroy the gonococci in twenty seconds. As to the time required for exposure of 1-10,000 bichloride of mercury, I do not know; neither do I know how long it will take argyrol or protargol to destroy the gonococci. To repeat what I have previously said, gonorrhœa is an incurable disease, and we should use those things or agents which experience teaches are of most benefit, and direct our efforts toward modifying the severity of the disease.

Reference has been made to the use of atropine in the treatment of this disease. It should not be forgotten that atropine is a conjunctival irritant, and that it should never be used in purulent conjunctivitis. If a corneal ulcer develop, then, according to its location, atropine or eserine should be used to keep the iris drawn away from the ulcerated spot.

DR. GEORGE H. PRICE, of Nashville:

As to the curability of gonorrhœal infections of the eye, I think they are curable. Nitrate of silver will destroy the gonococci if used in time,

and will abort the disease. Protargol, argyrol, and nitrate of silver will abort it. Cold applications must be used with considerable discretion, for the reason indicated by Dr. Capps. I do not use cold applications, as a rule, unless the patient is in the hands of a competent hospital nurse. The proof of the pudding is in chewing the bag. I have seen cases in which there was a purulent condition of the eye, yet the absence of gonococci was manifest by microscopic investigation after the fifth or sixth day, and they never reappeared after that time under the use of protargol, and nothing else, except as a solution for washing out the eye. Every time you use an irrigating solution, washing out the eye, instill a few drops of a prescription formulated by Scott, of Cleveland, Ohio. This prescription is known as Scott's Mixture. I use it in these cases with a great deal of benefit. It consists of hydrastin sulphate, one to two or three grains, according to the case; boric acid, twenty grains; borax, thirty grains; deodorized tincture of opium, one-half dram to a dram; and water, one ounce. This instilled into the eye after every cleansing has a salutary effect. It is better still if the hydrastin sulphate is substituted by the hydrastin acetate. If a case of purulent ophthalmia due to gonococcic infection, as demonstrated by the microscope, be taken in time, it can be relieved, aborted and cured, otherwise the condition must pursue the regular course of from two to six weeks.

Dr. Litterer spoke of having an infection in his eye. I saw him at the time, and it was one of the most marked cases of purulent trouble of the eye I have seen, and another characteristic symptom in his case was the deep penetration of the germ, causing most pronounced inflammatory symptoms both in the subconjunctival tissue and in the iris, and he was relieved at the time by the treatment which I have outlined.

DR. CULLOM (closing the discussion) :

In my paper I emphasized the importance of prompt measures, namely, the instillation of a twenty-five per cent solution of argyrol after eversion of the lids. Dr. Price spoke of his preference of protargol over argyrol because it was less irritating. That is exactly the reason why I dropped the use of protargol and took up argyrol. When protargol was introduced to the profession, I used it in my service at the Manhattan Eye and Ear Hospital, New York, where there was the only contagious ward in the city, and it was crowded all the time by these cases. At that time we made a great many experiments with protargol and nitrate of silver. We used nitrate of silver in one eye and protargol in the other. It did not take us long to discover that protargol was a great advance over the use of nitrate of silver. It checked the discharge promptly, and the eye got along better in every way. But I remember seeing a great many patients who complained of irritation of the eyes caused by protargol, and for that reason I tried argyrol, and have never had a patient complain of its use in the least. It does not seem to irritate as much as distilled water, and for that reason it

is of the greatest help in the treatment of these cases. I would not under any circumstances go back to the use of nitrate of silver in treating these cases.

Dr. McCampbell spoke of the necessity for protecting the other eye. I did not mention that in my paper, because it comes under the prophylaxis of the disease, and I considered the pathology and treatment. That, of course, is an important measure, and should be instituted at once, protecting the eye with some sort of shield. Possibly the best way is to take a watch glass crystal, place it over the sound eye, and fasten it with adhesive strips, leaving an opening on the other side for ventilation. That is a sure preventive.

Dr. Graddy said the pathology of the disease indicated the treatment. That is quite true. The pathology is caused entirely by the germ and by the penetration. Pus takes no part in it. It is the penetration of the gonococcus that does the damage, and for that reason the use of argyrol or protargol is indicated over nitrate of silver on account of its penetrating effect. These organic salts penetrate tissues and stop the action of the gonococci.

Dr. Zemp referred to the use of boric acid. We do not depend on it to destroy germs, but its principal effect is in cleansing, and we made some experiments in the hospital with a great many solutions, among them bichloride of mercury and various others, and it seemed to us that eyes got along better with the use of boric acid than with the use of any other solution for cleansing purposes.

Dr. Capps spoke of the use of leeches. I believe there are conditions of the eye when the use of leeches seems to give great benefit. I remember having a child in the hospital who had great pain, and after applying four leeches to the temple the pain promptly subsided; the child went to sleep, and the eye seemed to be definitely benefited.

ETHICS.

J. M. KENNEDY, M. D., KNOXVILLE.

NEAR two thousand years ago a famous Teacher and Great Physician formulated this code of ethics: "Therefore, all things whatsoever ye would that men should do to you, do ye even so to them!" Centuries later another great teacher, second only to the Divine One, expressed the same thought in these words: "This, above all to thine own self be true, and it must follow as the night the day, thou canst not then be false to any man."

Ethics is duty! Ethics is moral conduct! Ethics is the force which smooths the rough places of life; it is the oil of gladness;

the perfume of social intercourse. Ethics is harmony. By ethics is the universe upheld, and suns and stars guided in their course. Ethics is power and honor, justice, goodness, and truth. Ethics is the mailed hand that rights every wrong, that brings order out of disorder, that conquers chaos. Ethics is the voice of the Lord God Omnipotent calling the wayward sons and daughters of earth back to the Father's house. Ethics, properly applied, is paradise regained. Ethics is peace, good-will to men. Ethics is God incarnate, saying to the waves of trouble and sorrow that threaten to engulf helpless humanity: "Peace, be still!" Without ethics life would be a burden, and the question, "Is life worth living?" would indeed be pertinent.

Therefore, O ye sons of Hippocrates, would you be ethical, be good, be pure, be kind and gentle, be honest and fearless, and it must follow as the day the night; as sure as right is better than wrong; as sure as strength is better than weakness; as sure as health is better than sickness; as sure as joy is better than sorrow; so sure will you be successful and happy here, and inherit the joys of the hereafter.

DISCUSSION ON THE PAPER OF DR. KENNEDY.

DR. THADDEUS A. REAMY, of Cincinnati, Ohio, was asked by the President to open the discussion. He said:

Mr. President—In a short summons to address you on this subject, when this paper is so absolutely orthodox from every possible point of view, and Scripturally, philosophically and sociologically accurate in every way, it would be difficult for any one, particularly myself, to do it justice. I regard this paper as a marvel of literature, and it would be foolish for me to stand here and tell you how many times in my professional life I have suffered in the manner that has been described to you. There is no man living who has not had experiences of the kind that have been mentioned. There are some men who get into the medical profession—good men otherwise—who cannot keep and carry out those thoughts that have been mentioned. They either inherit or have acquired from some of their ancestors three or four generations back a disposition to steal. There is hardly any man who belongs to the State Medical Association of Ohio, or the State Medical Association of Tennessee, who has not suffered from the hands of those who have that ancestral defect. Such men cannot help stealing. There are distinguished women, and occasionally men, in every large city who cannot avoid stealing. They are good, honest women in every other way, but they have inherited a predisposition to steal, and they will enjoy anything that is stolen far more than gifts from their husbands or inheri-

tances from their ancestors. It is undoubtedly a species of insanity. It is a physical inheritance. The unethical men in our profession are either ignorant or they do not know what ethics means. But they are men who have inherited the propensity to steal, and do not regard the fact of sinning which the Scriptures speak of, and apparently do not fear the outcome in this world or the world to come. Such men do not hesitate to steal the reputation of a doctor, and when they do not know the difference between right and wrong, they ought to be pitied. I beg you to think of every man in the profession being everything else but unethical. There is nothing that handicaps some men so much in the medical profession as their unethical conduct. Some of them know they are acting unprofessionally, while others view the matter of ethics with great indifference.

In listening to the discussion on purulent ophthalmia, the idea occurred to me that there are men in our profession who are troubled with overweening conceit, and if they think a case belongs to the gynecologist, they are loath to let it pass out of their hands. They think they can treat the case as successfully as the specialist. They inherit that particular qualification which makes them fancy that they dwell in an upper atmosphere, and they steal the reputations of their neighbors because of their mercenary solicitude for the welfare of patients. (Laughter.) Wherever you find a man so conceited that he suffers from that particular form of mental squint, which involves the whole system, he is a dangerous practitioner. I think it is a horrible thing if a woman should die under such a man's treatment, and she is likely to do so if he does not understand her case and does not carry out intelligent treatment. Such men have heard such a model sermon as we have listened to today in the past, but they did not heed it. They are not governed by those high, noble, moral principles of eternal truth and honesty that will guide men in their actions; hence we should pray for their preservation, and when they die, exclaim: "Now, Lord, let thou thy servant depart in peace." (Applause.)

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SYMPOSIUM ON TUBERCULOSIS—"PROPHYLAXIS IN TUBERCULOSIS."

Y. L. ABERNATHY, M.D., HILL CITY.

EARLY diagnosis, compulsory notice, and isolation (as in smallpox and other infections) are some of the essentials in combating this disease. This implies legislation, which must come through strenuous efforts of the medical profession. This is an imperative duty.

Authorities promptly suppress a number of infections, through quarantine, isolation, and enormous effort and expenditure. Why not this with more victims than all combined? Law must be invoked, or doctors are powerless in the presence of epidemics. This applies to all, but with emphasis to tuberculosis, which is universal and almost numberless, and like Tennyson's Brook flows on forever. Other infections come and go, with the fury of a cyclone, impelling preservation and prevention. This slow, silent, and insidious in its development, and indefinite as to time and place of exposure, and constant familiarity, is robbed of its terrors, and until recent years has not been considered infectious, and has failed to excite the interest its importance demands.

This being established, and that it is preventable and curable is eliciting the most profound attention. Universal war upon it exists. Marvelous results are reported. Dr. Biggs, of New

York, claims a reduction of thirty-three and one-third per cent in mortality in that city, because of enforced sanitation and hygiene in the erection of tenement houses, as well as the demolition of those propagating disease. This is a most convincing illustration of one exceedingly important method of preventing tuberculosis, and all diseases, and should be copied by every municipality. Avarice must not menace health, and will not if the profession will teach the laity and influence legislation.

This is the paramount thought in this article, that education and legislation through the medical profession are the keys to the situation. The *sine-quo-non* in the prevention and destruction of tuberculosis, and all infectious, preventable diseases. They are a constant burning shame, and foul stigma upon the profession and the authorities having the power to destroy them.

The astounding success achieved by the various governments of the world in controlling cholera, yellow fever, bubonic plague, etc., is proof positive that they will conquer the great white plague. This may seem utopian, but in view of results already attained, and the fact that world-wide organizations—State, National, and International—are earnestly exerting every effort to prevent and destroy the common enemy, renders it entirely feasible and credible. It is an Herculean task, and many decades will have elapsed before it is accomplished, and before some medical Alexander will weep for more worlds to conquer, or Othello's occupation will be gone. But this is what every true doctor is most unselfishly striving to accomplish. By far the most important function of the doctor is to prevent disease and the habits and crimes which propagate them. This means to teach, elevate, and ameliorate humanity, hand in hand with the clergy. He is the conservator of the health and longevity of the race, which depends upon its moral and spiritual integrity.

This implies an equipment adequate to the task which presupposes medical politicians and statesmen as essential in every law-making body, where questions pertaining to health and welfare are considered, and must be to intelligently and scientifically destroy disease and promote health.

We need a Secretary of Health more than a Secretary of War, and more medical statesmen with the brilliancy and versatility of Read and Virchow.

All medical men, individually and collectively, should wield the political influence they are so capable of. Not from a partisan standpoint, but civic and altruistic, in the prevention of crime and disease and promotion of health and happiness.

In no way can this be more effective and opportune than with might and zeal to fight unto death the destroying, hell born, damnable demon alcohol. The only successful rival in calamity, disease, and death to the great white plague; horrible, putrid, cancerous excrescence upon the body politic festering with venomous pollution and crime; breeder of rape, insanity, and murder, reeking with all the woes and diabolical tortures of Dante's *Inferno*.

It is our duty to fight it as a disease producing agent, to say nothing of the moral aspects of the question. For contrary to the claims of the manufacturers and vendors of the poison, and excuses of its deluded victims "that it is conducive to health, is both food and medicine," etc., it is one of the surest and greatest sources of disease, decay, and death. This was the concensus of opinion recently expressed by the British Medical Association, and represents the almost universal verdict of the profession.

This applies with emphasis to tuberculosis, because of its deteriorating influence, and weakening the resisting powers, so essential in combatting its attacks. It also furnishes constantly congested, inflamed, and ulcerated membranes, exactly suited to the propagation of tubercle baccilli. It is also established and recognized by all that the victims of alcoholic poisoning are peculiarly susceptible and easily succumb to every variey of disease. Also that it produces directly a large number of formidable, fatal maladies, which all combined furnishes a record unutterably vicious and establishes the imperative necessity of total world-wide abolition, now and forever. The fearful responsibility rests in a peculiar manner upon our profession.

The tubercle baccilli is a great coward, notwithstanding it has the dignity of being the most dangerous foe of the race. Its attacks, as a rule, are upon the weak and nonresisting. It delights in vitiated, dark, and unsanitary environment, and is intolerant of pure air, sunlight, and hygienic surroundings. Its incipient attacks are, as a rule, arrested and cured through these agencies. Then it naturally follows as the most important statement con-

nected with the entire subject, *that they can be prevented through them*. Then why isn't it done? Prudence and wisdom dictates it. But unfortunately so many millions are deficient in these attributes, and through poverty, ignorance, and misfortune, and the fact "that man's inhumanity to man makes countless thousands mourn," are unable to utilize these blessings, the common heritage of all, and fall an easy prey to its ravages.

Herein lies the necessity for missionary work by our profession. Millions of treasure and government aid are essential, as stated to remedy the situation. This is in recent years beginning to be fairly launched upon a most magnificent scale. As a slight illustration, the State of Pennsylvania recently appropriated \$1,000,000 for additions to her State sanitarium, and to establish dispensaries for the cure and treatment of tuberculosis in each county. In Philadelphia, the head center of medicine upon this continent, there were then 11,000 cases of tuberculosis, with only six per cent of them in sanitaria. The other ninety-four per cent were living and dying in the midst of their fellows, as deadly a menace as if they were lepers. This shows both the large scale upon which it is being combated, and yet how inadequate as to its control and prevention. New York and many other States are spending millions in sanitaria and various methods and devices for its cure and prevention.

Teachers are required to lecture upon it. The pulpit and press, clubs, and various organizations, are enthusiastically in the fight. Measures commensurate with the magnitude and gravity of the situation are being adopted everywhere. But many problems are yet to be solved. Perhaps the most difficult is the question of isolation, because of the vast number, and the fact that the majority would rebel (as in other infections) when required to make sacrifices for the common good. The natural love and sympathy of relatives and friends, and the combined interests and influence of the subjects, would be extremely difficult to overcome. But it is essential to its eradication, and will finally be adopted.

Sanitariums can be utilized by the few, with means to afford it. For the large majority tuberculosis farms, or colonies, would be required, with various enterprises, manufacturing, gardening, farming, etc., for those able for manual labor, to make them self-

sustaining and relieve the monotony and ennui of the life. Each county and city should have one, and upon it suitable quarters for confirmed invalids, and incurable cases. Early diagnosis by the county bacteriologist, upon whom the responsibility of assigning them to the sanitarium, or colony, should devolve, is an essential factor.

Perhaps some island in the tropics could be utilized by infected families wishing to emigrate, as they have now for lepers.

Specific serum therapy (tuberculin, watery ext. of tubercle bacilli, etc.) is receiving quite a good deal of attention, both as a cure and prophylactic, with the trend rather more favorable to them. How much is genuine and how much commercialism (the greatest incubus upon our profession) remains to be demonstrated. They perhaps possess undoubted efficacy in early diagnosis.

Laws to abate every form of nuisance as dust, smoke, expectoration, etc., and to enforce sanitation in building, drainage, water, and food supply, and in every conceivable way guard against all insect purveyors and all sources of disease, should be enacted and rigidly enforced.

Dairy products and stock should be frequently inspected. An alarming per cent of them prove to be infected. Some of our best authorities claim that the digestive tract is more often the port of entry for tuberculosis than the respiratory, especially so in children, in whose economy the germs are encapsulated and lie latent, awaiting an indefinite future development.

From a mere financial consideration of the question it would be economy for governments to appropriate hundreds of millions annually for its prevention. The usual estimate of the financial value of the life of a citizen to the State aggregates a sum far beyond what it would require to obliterate the malady. This is the lowest plane of consideration. Contemplate the humanities, duties, and obligations, race preservation, perpetuity, and longevity, the redeeming attributes, sympathy, love, and charity, imposing the mitigation and prevention of sorrow, suffering, and death, then try to appreciate the stupendous responsibility upon those whose province and duty it is to destroy and prevent disease, and the enormity of the crime of dereliction. Having the power and

not exerting it in the prevention of diseases susceptible to eradication makes us a party to the carnival of horrors and death.

Xerxes was moved to tears at the thought that in one hundred years his splendid army of a million would have all perished. What heart rending anguish and excruciating pity results at the view of millions of pale, emaciated, weak, and trembling victims marked for speedy, premature death. In mute despair they turn to us for help. With sad half appealing, half reproachful gaze, burning lustrous, pathetic, tragic they haunt us with an irresistible fascination that impells to duty. They implore, demand the help that we can give in the bitter death struggle with the "Great White Plague."

EXPERIMENTAL TUBERCULOSIS PERITONITIS.

WM. LITTERER, A.M., M.D., NASHVILLE.

FOR the past three years I have been conducting experiments upon animals (dogs, guinea-pigs, cats, etc.) with a view of ascertaining as to whether it was possible to produce tuberculous peritonitis from the alimentary canal without involvement to the wall of the gut, mesenteric or retroperitoneal glands. The open question as to whether we can have a primary infection of the peritoneum is answered in the negative by such men as Veit, Nothnagel, Vierodt, and a great number of recent writers. The results of my experiments have only been partially successful, in so far as demonstrating a primary peritonitis is concerned, but in the course of these investigations I have been able to demonstrate the passage of the tubercle bacillus through the normal intact mucous membrane without showing any evidence of lesions produced at the point of entrance. This is the opinion of Walsham, Harbitz, Theobald Smith, Ravenel, and many other investigators. Baumgarten's views run counter to the above. He insists that tubercle bacilli always produce some lesion at the point of entry into the body.

It would be impossible in the short space of time allotted to me to go into detail of the various experiments that I have been conducting, but will have to content myself with only a brief resumé of the subject. These investigations will be published in detail some time subsequently.

In the experiments, dogs, guinea-pigs, and cats were used in seeking to elucidate the possibility of a primary tuberculous peritonitis. Some of the animals were purged, others were given opiates and similar drugs. Some were starved, while others were overfed; the kind of food was also taken into consideration. Both human and bovine tubercle bacilli (young and old) were used and grown on different media. Without giving in detail my results, which were in the main negative, I will simply relate the method that I am using which has proven the most successful in attempting to arrive at a solution of this very vexing problem. Dogs proved to be rather satisfactory. They were immunized (which by the way is slight) by several interval injections of a suspension of dead tubercle bacilli, killed at sixty degrees Centigrade. When this slight immunity was obtained, the dogs (six in number) were then fed on attenuated* bovine tubercle bacilli, which were placed in a capsule so as to insure against infection of the mouth, throat, tonsils, etc. From five to ten weeks later the dogs were killed, and in only one instance was there revealed no evidence of intestinal lesions, both macro and microscopically, but the mesenteric lymph nodes were involved (proved microscopically and by guinea-pig inoculations). All the dogs with the above exception showed some lesions of the intestinal tract, and in three there were in addition a few miliary tubercles scattered here and there in other viscera. Later I have been more successful in not producing the intestinal lesions. This is done by feeding the partially immunized dogs with the sputum from a case of chronic phthisis (that has been running for several years without any very marked change in the condition of the individual). Two out of five dogs thus experimented, when killed showed no intestinal lesions. Both had slight mesenteric glandular enlargement. In one of these there was no distinct peritonitis

*This particular strain of bovine bacilli was very virulent to dogs, which is rather singular, as they are generally regarded as being very resistant to tuberculous infection.

as could be made out microscopically, but my suspicion was aroused as to the beginning of such a condition by an excess of fluid in the peritoneal cavity. This fluid was inoculated into several guinea-pigs, all of which died of tuberculosis, showing possibly if the dog had not been killed for perhaps several weeks longer a genuine tuberculous peritonitis might have developed. The object in producing in these dogs as near an immunity as possible is to prevent an acute general miliary tuberculosis which occurs quite frequently in the non-protected animals. Within the last year the guinea-pig was the animal used as an attempt to produce peritonitis without evidence of other lesions in the body. Several series of guinea-pigs (six in each series) were fed (a) with the avian tubercle bacilli, (b) with living bacilli from cold-blooded animals, (c) with a culture of** human bacilli artificially cultivated for more than twelve years. At the end of six weeks the pigs were killed and autopsied. No effect was produced by the avian type nor from the tubercle bacilli of the cold-blooded animals. From the twelve year old human tubercle bacilli there was produced in two pigs an enlargement of the mesenteric glands with no lesions of the intestinal mucosa. These glands subsequently proved to be tuberculous, by demonstration of the bacilli in the nodes. No involvement of the peritoneum was noticed. I am inclined to think that if a large number of animals was used that it might be possible to come to some definite conclusions as to the possibility of an experimental tuberculous peritonitis. From these investigations I have not been able to prove that such a condition is possible of attainment. Similar experiments may have been made by other observers, but we fail to find any reference to it. The literature on tuberculosis has grown to such stupendous proportions, and any one who enters this field with any suggestions or theories is certain to do injustice to some precursor, for almost every possible interpretation has been stated somewhere before.

**This culture was obtained from Koch's laboratory.

SURGERY OF TUBERCULAR CERVICAL GLANDS.

W. A. BRYAN, M. D., NASHVILLE.

THE new in surgery creates such a glamour about us that we forget the old, even when it is far more important, considered from the surgical or lay standpoint. A great rejoicing is had over the accomplishments of the newer developments of surgery of the appendix, the gall-bladder, the stomach, and this that we have always had with us, tuberculosis of the cervical glands, "scrofula," though it causes more fatalities than they all combined, is forgotten. The laity take tuberculosis as a matter of course, and we physicians, because we derived our early training from them easily fall into line. Medicine has demonstrated that tuberculosis is primarily like cancer, a localized process; surgery has demonstrated that while local, in many instances, it can be totally, safely extirpated. Still the rank and file of us lose sight of the fact, and allow patients in good condition to procrastinate until the fine physique is gone and the spread of the infection has gone so widely that an operation at best is a hopeless, hazardous attempt to undo our wrong, a grasp at the last straw. All of you know, as well as I, what a stampede, what a panic a mild attack of appendicitis or the evidence of a gastric ulcer will throw you into; how you grow serious and begin on that beautiful and emphatic little piece of eloquence to convince that patient of the enormity of the risk he takes to carry around in his belly a storm producer that at a single breath may blow him into the world to come. You remember how you have studied that speech consciously or unconsciously to make it a winner; how you have said it over to yourself, modulating every syllable and creating every little grimace of seriousness. And what did you say to the one who had tubercular lymph-nodes? "Oh, well, you just have scrofula," leaving him to paint the dark picture hopelessly for himself, and to go and die and praise you for not advising radical treatment in the effort to stamp out the great

white plague from his body. Unjust judges that we are dispensing unequal justice!

It must not be forgotten that tuberculosis is nothing less than tuberculosis, wherever it may appear, and that though localized today, tomorrow it may not be; nor must it be forgotten that accurate dealing with surgical tuberculosis is perhaps the most potent factor at our command for preventing phthisis pulmonalis. The practitioner deplores the enormous ravages of consumption, he hates to treat it, he worries over the outcome; then let him recognize it in embryo, call it by its right name, and advise accordingly. What kind of a speech could we not make over an intra-abdominal condition whose medical treatment offered from 25% to 50% mortality and whose surgical treatment gave less than 1% immediate mortality and less than 10% recurrences?

What are the routes of invasion of tuberculosis into the cervical glands? Anatomically there are two possibilities, one the deposit of tubercle bacilli in the glands by the blood current, the other, more direct, is the carriage of the germs through the lymphatics from the atria in the regions whose lymph-flow filters through the cervical lymph-nodes. The former is certainly much less frequent than the latter, and this is all the more true when the first evidence of tubercular invasion is found in these nodes. To put it simply, the average case of primary tubercular cervical adenitis means that there has been, and often continues to be, a feeder situated in the mouth, pharynx, nose, throat or scalp which received and served as a lodgment for the infection, whether showing signs of it or not, and which in its turn gave up that infection to be transmitted along the lymph-channels to a series of lymph-nodes varying in number from a single gland, or group of glands, to the total occupying the side of the neck and upper thorax. I desire to emphasize the fact that there must be a focus from which the bacilli have been transmitted to the nodes, and that that focus may contain, not only may, but no one can tell clinically at least when they do not contain large numbers of them ready to be transmitted at a future time unless cognizance is had of the facts at the time of the operation. The route of transmission usually is in the direction of the flow of lymph. Yet, a reverse infection is often seen which, Senn thinks, is due to amoeboid movement of phagocytes up stream in channels whose

flow has been blocked by changes occurring at the site first involved. However it may occur, the fact is incontrovertible that the posterior auricular glands, for example, do become affected after those situated in the inframaxillary region, a fact that must not be forgotten in excision if the work is to be adequate.

Eczematous and ulcerative spots on the mucous or cutaneous membranes of the head, catarrhal inflammations of the upper air passages, infections and inflammations of the mucous membranes of the mouth, carious teeth, so common in children, and above all, diseases of the tonsils, especially hypertrophy, when they harbor tubercle bacilli should be capable of transmitting them to the region under study. To what extent does this happen? Let me illustrate by a few of the more important atria. Tubercle bacilli almost always are found in carious teeth of those having pulmonary tuberculosis. Ungar was the first to demonstrate that they occupy cavities in the teeth of healthy individuals, and to show an etiological connection between this and tubercular adenitis in the neck. This was later confirmed by Stark, who even holds to the extreme belief that they are responsible for most cases; children have carious teeth more than adults; they have cervical adenitis more frequently; children of the poor have their teeth less cared for than those of the better classes; they likewise have glandular infection much more frequently than the latter. It sounds reasonable that an unkept mouth with no other nidus than that afforded by a set of decaying, uncleansed baby teeth should be responsible for much of the trouble especially since it has been demonstrated that bacilli are often found in them, and since their lymph routes are through the same nodes as those of the other mouth structures.

The tonsils and adenoids are another fertile source, showing tubercle bacilli in varying percentages according to various investigators. Lartigau and Nicoll in a study of seventy-five consecutive specimens of adenoids obtained from various sources in New York City, obtained interesting results. The specimens were all taken from patients who, aside from the adenoid disease, were as far as could be ascertained healthy. Twelve of these, or nearly one in six, produced tuberculosis on being injected into animals. The conclusions as given by Lartigau and Nicoll are as follows:

"(1) Adenoids consist essentially of hyperplastic pharyngeal lymphoid tissue. The epithelium and fibrous tissue changes are inconstant and variable, and independent of the age of the patient. The new formed fibrous tissue is largely perivascular in distribution. It may occasionally be one of the factors in the process of the disappearance of the adenoid.

"(2) The hyperplastic pharyngeal tonsil often contains micro-organisms, and these are mainly pyococcal forms. The bacteria for the most part lie near the surface, and the infection usually occurs from the surface, with or without demonstrable lesion of the epithelium.

"(3) Primary tuberculosis of adenoids is probably more common than most previous studies show. Of our series, 16% contained tubercle bacilli, 10% with lesions characteristic of tuberculosis. The tubercle bacilli were present in small numbers.

"(4) The lesions in primary tuberculosis of the adenoid are generally close to the epithelial surface, and focal in character. Occasionally they may be found in the deeper parts of the pharyngeal lymphoid tissue.

"(5) The pharyngeal tonsil may be a portal of entry for the tubercle bacillus and other micro-organisms in localized or general infections."

Baumgarten produced tuberculosis in the tonsils of animals by feeding material containing tubercle bacilli. Ruge found definite tuberculosis of the tonsils in one-third of eighteen cases he operated on, 33%. Mayo has demonstrated their presence in practically three-fourths of a long series; while autopsies done by Schlenker, Strassman, and Krueckmann proved that not only were the tonsils frequently tubercular in those dying of consumption, but that tonsillar tuberculosis was almost constant when tubercular glands in the neck were present. Eighty-six per cent of Dowd's series of cases were demonstrated from mouth, nose, pharynx, or fauces.

It is by no means true that the presence of tubercle bacilli in the tonsil or other mouth, nose, or pharyngeal tissue or their passage through them signifies that that particular structure has sustained a tubercular pathology. On the other hand, lesions of these tissues are tubercular in a large percentage of cases, and so bear a most important relation to the etiology of tubercular

adenitis. It has been demonstrated, as shown above, that the tonsils occupy the first rank. I believe carious teeth would easily take the second.

PATHOLOGICAL CHANGES.

This discussion is intended to have a practical bearing, so as to aid us if possible in the use of our surgical judgment more accurately at that time when it is put most severely to the test, viz, in the midst of an operation. Hence it is not a matter simply of general erudition for me to enter into a description of the minute changes found, that will aid the surgeon in establishing a line of conduct; on the other hand a study of the gross changes may impel us to go on and do a more radical operation than was planned at the outset, or even force us to change the plan completely. Too much study of gross changes cannot be done.

When tubercle bacilli have been enmeshed in the tissues of a lymph-node, the result is the uniform result of their presence in tissues, provided phagocytic action cannot eliminate them, viz, the formation of tubercles, whose course further will vary with circumstances. The tubercles go on to the stage of caseation, softening, breaking down into a pseudo-purulent fluid, which remains in the gland capsule, or escapes from it by ulceration and accumulates in the inter-muscular spaces, following the lines of least resistance, aided by gravity or localizing at some point and establishing an outlet through the skin. The number of tubercles appearing in any infected gland will vary with the quantity of micro-organisms gaining a hold. They may be few, and the gland maintain its structure for a long time, or numerous, and as the degenerative changes follow they will gradually coalesce, causing the formation of pockets of pus and necrotic tissue. This pus we have been misled to believe is sterile, and so innocuous; it is known that inoculation with it, though the microscope may show no tubercle bacilli, almost uniformly produces tuberculosis. So the ease we once felt on knowing that the distribution of such pus over the wound-surface would not interfere with primary union can well give place to fear that a far worse infection with tubercle bacilli will follow *in situ* or remotely. This same truth should give us also more concern

relative to the disposal of discharges from sinuses of tubercular origin.

The process does not confine itself, unfortunately, within the gland capsule. After the destructive work has finished its course on the glandular tissue the fibrous-tissue envelope, thickened already, suffers from the development of tubercles appearing in its substance, on its surface, and in the tissues lying in relation to it; peri-adenitis has developed, node is attached to node, and they no longer can be isolated by palpation; movable prior to this occurrence, they now are all matted into a mass, and lose their discreteness and mobility. Easily enucleated before, they now offer the most difficult task; confined within the limits of the capsule then, the infection now has escaped bounds and cannot be with positive assurance dissected out.

The tubercular lymph-node may be large or small; its size is no index to the amount of infection present; it only signifies what response that infection has been able to evoke at the hands of the tissues. Much size means many phagocytes or leucocytes escaped into the gland. A node the size of a pea can have the same deleterious effect as one large as a guinea's egg. This can be easily appreciated by observing the frequency of recurrence in those operated on without any view to the anatomical structures or the pathological habits concerned.

The resistance offered on palpation of tubercular cervical glands, as elsewhere, depends on the status in the capsule. Therefore they may be felt as hard, medium, soft, or fluctuant swellings.

Cut surface appearances give two principal types before extensive disintegration develops; one shows the glands swollen, firm, containing little or no juice on pressure, yellowish or mottled with yellow areas. These spots are opaque. The gland is friable and easily crumbled; the other type is like the first firm and swollen, on section presents a grayish surface and possesses gray translucent nodules at the site of tubercle formation. These may remain discrete or coalesce. The difference is not essential; in the first the distribution of the bacilli is more diffuse and diapedesis, and multiplication of epitheloid connective tissue cells is more uniform throughout.

Natural destruction on encystment of a glandular tubercular focus occurs, but with such infrequency as to make it negligible

from a practical point of view, cicitrial tissue forms in these conditions in sufficient quantity around the diseased tissue to cut off all communication either through lymph-channels or by direct extension, and thus if the micro-organisms are not obliterated, at least they are entrapped and harmless pro tem. Yet after the fashion of any residual infection they, though dormant, serve as a continual menace, awaiting an insignificant circumstance perhaps to rekindle their activity.

Calcification of lymph-nodes affected with tubercle does occur, and is to that extent curative. It is seen more frequently in old individuals, and obliterates the surface of the gland alone, or more or less completely occupies its whole substance. In cases where sinuses form and secondary infection follows, these calculi lying at the bottom serve as additional factors aiding the tubercular lining to maintain the opening.

Rupture of pockets of fluid (pus) has been known to occur into the veins nearby and result in a rapidly fatal miliary tuberculosis. It is rare, but its possibility should encourage us, first, never to allow a pus cavity to go untreated simply because it is not giving rise to severe local and constitutional symptoms such as appear in acute infections; and, second, never to postpone operative treatment until pus formation has occurred.

That the lymphatic channels themselves can be attacked by tuberculosis has been repeatedly demonstrated, particularly with reference to those of the abdomen, and it is thought that the chief reason why it has not been done for the lymph channels of the neck is that there the demonstration would be more difficult, and so it has been attempted less frequently. This has its bearing on our surgical treatment. There are furthermore a few cases of extension of tubercular infection from the neck to the axilla, whether by an intermittent backward flow of lymph, or by direct extension by growth along the lymph canals. The axillary infections are usually primary.

However it comes about, the fact remains, and those glands ought always to be examined, more especially, I should say, in those cases where the neck changes have extended into the lower nodes of the chains. It is not so gross an error to leave tubercular lymphatics in the axilla as in the neck, but such an oversight detracts both from the accuracy of the surgical diagnosis

and treatment, and adds materially to the unfavorable side of the prognosis.

The diagnosis of these tubercular lesions of the neck can usually be made with ease and a fair degree of certainty, and it should be made with all the painstaking accuracy used to recognize a case of chronic appendicitis, for, I repeat, they are more dangerous actually, and relatively, for they are more insidious.

They may be confused with syphilitic glands, with lymphosarcoma, with leucocytopenia, pseudo-leucocytopenia (or Hodgkin's Disease). Simple hyperplastic lymph-nodes ordinary glandular involvement follow ulcerations or infections in the fields drained, hardly with metastatic glandular enlargement from malignant tumors.

Tubercular cervical adenitis may manifest itself without the notice of primary lesions. There are exceptions, but usually, at least in my experience, the first consultation is for the presence of the nodes, "kernels," in the neck. At that visit an examination usually will disclose a satisfactory atrium, in the tonsils, teeth, the upper air passages. The number of glands attacked is very variable; there may be any number from one to the whole group on either or both sides of the neck; their size may vary from the slightest perceptible enlargement to that of a turkey's egg, and there are as a rule all sizes in a given case with certain very large nodes. They may all appear firm, or there may be softening and fluctuation in one or more of them. If examined early they may still be discrete and movable; but later they coalesce more or less completely, so that individuals are not readily outlined, and their mobility disappears. Ugly scars on the neck may be of value in indicating that old glands have broken down and discharged their contents. If the patients' statements are reliable, evidence may be had that the whole group did not enlarge synchronously, but that certain few of them (the upper ones), one or both sides enlarged, and that after that gradually the others followed in succession. The whole period has probably covered a long time, although now and then they are developed almost acutely. The history the patient gives of having had frequent "sore throat" is of significance in so far as it indicates that the tissues of that throat degraded by disease are more suitable soil for tubercle. Collateral signs of tuberculosis situated

elsewhere, or manifestations of a tubercular diathesis and heredity, with assurance that the patient has lived in an infected house, are all confirmatory. They are usually in people under thirty.

Pressure symptoms, whatever the size, number, and location of the nodes, whatever the stage of advancement, are rare. In one case reported in von Bergmann's System there were present dyspnoea, difficulty in speaking, which both disappeared on excision of the mass.

In purely lymphatic tuberculosis there will be little or no constitutional disturbance; these patients are often robust, although most that I have seen were not. General examination gives evidence that an alarming percentage of them have tuberculosis of internal organs, especially the lungs, 26% of 160 cases (von Bergmann) had pulmonary involvement; 10% of Fraenkel's cases died; Furnrhor's, 26.4%; Wohlgemuth's, 12%; Demme's, 21%; 20% of Brun's; so that we gain not only information of the mortality from extension, but can decide what cases have good prognoses by giving careful physical examination. It is not enough to examine the neck and stop.

Leucocythemia or Lymphatic Leukemia may be distinguished by the following points: The enlargement of the glands is more extensive, many on both sides of the neck showing at the beginning other groups, as the axillary and inguinal likewise simultaneously or subsequently enlarge. However, the growth may be confined to the neck alone long enough to mislead, unless other evidence is well considered. The glands are rarely larger than a walnut, movable, show no evidence of peri-adenitis, and are soft. They do not break down and soften, neither do they give evidence of inflammatory changes. There is a large increase in the lymphocytes, even to the proportion of one white cell to two reds. Occasionally there is an acute beginning with presence of fever and rapid development of the nodes. Enlargement of the spleen and liver, the presence of hemorrhages, the appearance of dropsies otherwise unexplainable, collateral symptoms of anemia, retinitis, excess of uric acid, when any or all of them are present favor the diagnosis of leucoeythemia against tubercular adenitis.

Hodgin's Disease, pseudo-leukemia or malignant lymphoma is much more difficult of distinction than perhaps any other con-

dition. In pseudo-leukemia the cervical glands enlarge first, usually appearing for a short time on one side before they do on the other. The cervical glands remain at times much enlarged for years before the groups show signs of the disease, but as a rule the axillary, inguinal, and perhaps the internal glands, begin to grow within a few months. No peri-adenitis for a long time attaches them to the skin which covers them, hence it may be glided over the masses. Later the glands adhere to each other and proliferation through the capsule occurs attaching the structures in relation to the glands. The glands grow rapidly, more rapidly than the tubercular glands (unless it be the pseudo-leukemic type of tubercular adenitis), and show no respect for particular regions drained by those channels entering these nodes. Hence while in tubercular disease one may expect a more or less definite beginning dependent upon the site of the atrium, and extension from this first enlargement to other glands more frequently in the direction of the lymph-current, no such rule is observed in Hodgkin's disease. Hodgkin's disease, therefore, may appear in any or all the triangles of a side of the neck, and later the other side, thus encircling it, while tuberculosis pursues a more definite course and often fails to involve the second side. The size attained by lymph-nodes in malignant lymphoma is enormous, as large as one's fist, even to that of a child's head (Am. Path., 495), and the resulting deformity is marked, beyond anything approximated by tubercular glands. The glands in Hodgkin's disease are at first fairly soft, later as they grow, they, unlike tubercular glands, become firmer, harder to the touch. Degeneration, suppuration rarely happens. Pressure symptoms, such as dyspnoea, dysphagia, aphonia, are usual in Hodgkin's disease, rare in tubercular disease. Remissions and intermissions in the growth of pseudo-leukemic glands is often observed. Tubercular glands are seen more frequently in people under twenty years of age, especially those whose environment has been imperfect; pseudo-leukemia occurs in any age, averaging higher than the former, and shows no etiological connection with environs of improper hygiene. From the above if one is still unable to differentiate between the sub-acute pseudo-leukemic type of tubercular glands and Hodgkin's disease, it is wise before operating to assure oneself by excising a node under cocaine and making in-

oculation tests on guinea-pigs. The development of other groups of lymph-nodes usually comes to the rescue of the diagnostician. The difference in the general picture of the two, if at all well developed is usually conclusive; in tubercular adenitis a discoverable atrium, a definite group of glands involved, with a definite explanation, and a patient whose general health is either good or impaired in such a way as to add enlightenment on the diagnosis. In Hodgkin's disease we find a patient who is plainly sick, and enlargement of glands whose site and whose region of lymph supply offer no clue to the cause, an enlargement without an atrium; pallor, anemia, languor, emaciation, dizziness, headache, palpitation, difficulty in breathing, edema of the feet and legs, a hemorrhagic tendency, manifested by epistaxis, abnormal menstrual flow, petechiae; fever moderate, irregular; and various obstructive symptoms.

The general information of the profession on the manifestations of syphilis render it scarcely necessary to recall the differences between syphilitic and tubercular cervical lympho-adenitis. The former has a history of syphilis, which of course may be unobtainable from ignorance or deception; it occurs more in adults; there are usually other syphilitic signs present; the glands are, as a rule, small, hard, neither painful nor tender, distinctly separated from each other, and not attached to the adjacent structures, the posterior chain is more frequently affected, and that as a rule rather uniformly in the course of the chain. If there are lesions in the mouth, then corresponding groups are enlarged. The syphilitic glands are bilateral, and more or less symmetrical. They do not tend to suppurate. They respond to syphilitic treatment. Syphilitic glands are common both in the neck and groin; tubercular glands are common in the neck, but rare in the groin.

Malignancy, when causative of secondary enlargement of the glands, gives evidence by its presence, although at rare times the primary lesion is so insignificant in size and symptoms as to almost escape detection. This enlargement may mean that there is simply a metastasis. This should always be presumptive; or it may be due to infection admitted through the ulcerative surface of the primary tumor. Lympho-sarcoma is more confusing at the beginning than secondary enlargement from primary malignant foci. It begins in a single node, and in keeping with its kind

grows rapidly. There need be no evidence of disease in any other tissue. It occurs without the presence of discoverable pathological foci up the lymphatic stream. Infiltration is early and extensive, by that I mean that it is more than peri-adenitis of tubercular nodes could accomplish in the same early period; not only so, but it is more far reaching, attaching skin, fascia, muscle, vessels, nerves, bone all into one mass. Eisendrath says it is always movable on the deeper structures. Metastasis near, or remote, both occur early. Firm and harder and larger than tubercular glands, it does not suppurate or caseate, but ulcerates; this may be preceded by softening and rupture of the tumor which discharges a watery pultaceous substance. Hemorrhage is often seen from the remaining deep ulcer. Sarcoma is often painful early; absence of pain, though, is not diagnostic. The skin surface over lympho-sarcoma is often reddened, and there may appear dilated blue veins coursing in this skin surface over the tumor. These may be seen while the tumor is still hard and solid; the redness occurring over tubercular lymph-nodes is only present when pus-formation has occurred and the cavity is about to open on the skin surface.

Simple hyperplastic lymph-nodes are soft, painless, do not break down, are movable and symptomless.

Prognosis. It is impossible to say what percentage of cases ultimately die as result of tubercular infection of the neck glands. They are certainly very numerous, as any physician can verify by reviewing his cases of death from tubercle, and recalling how many of these had consulted him for the presence of enlarged glands years before.

Von Bergmann's System of surgery gives the causes of death as follows:

"1. By extension through the lymphatic system (pseudo-leukemic type).

"2. By extension through the circulatory system with the development of miliary tuberculosis (rupture of a cheesy gland into the jugular vein); this may occur without apparent cause, or after acute local increase of symptoms, or in rare cases after operative interference.

"3. By the development of pulmonary tuberculosis, which results fatally within a short time.

"4. By the presence of multiple tuberculous foci in other organs (bones, joints, meninges)."

Now and then a rare case of spontaneous recovery takes place; too rarely to be of any value.

The meager records of the cases treated non-surgically have been well gone over by Dr. Chas. N. Dowd in the Annals of Surgery of July, 1905, showing:

From the Jenner Childrens' Hospital, in Berne, covering a period of twenty years, 692 patients with lymph-node tuberculosis, of whom 29.2% developed some other form of the disease, and presumably died from it; phthisis pulmonalis, 21%; tuberculosis of the intestines, pia-mater, kidneys, epididymis, 8.2%. Dowd calls attention that these percentages do not include bone lesions, nor the cases that may have died from the lymph-nodes lesions alone.

In the Tubingen clinic from three to sixteen years after constitutional treatment, 28% had at the time, or had died of, tuberculosis.

Of 160 cases from Blas' Heidelberg statistics three to twelve years after operation, 26% of phthisis and 14% in the other organs, 40% in all.

Fischer collected 1,273 cases, including some of the above, and gave, after one to sixteen years, as cured 57.65%, local recurrences 21.84%, dead usually from phthisis pulmonalis 13.51%.

The cases included in the above statistics are the results of both operative and internal treatment. So that no accurate comparison can be made of their relative value from this series. However, it may be affirmed that the tendency has been in the great clinics toward operative treatment in preference to constitutional, and in operative treatment more and more toward radical work—*i. e.*, excision as against incision.

TREATMENT.

It was my purpose to cover at this point especially the operative treatment, as I am sure nearly all the cases that come to operation do so after having run the gamut of internal and local treatment, the worthlessness of which most physicians would honestly have to admit. If internal treatment cures the patient, if he gets well of his own accord, or in spite of treatment, well.

But the idea I wish to convey is that if he does not get well, or if he grows worse under local and internal medication, or has evidently reached the stage where these can hope to do no good, then let us admit it, and give him the best treatment of them all. Unless opsonins are to offer us much in the treatment of these glands, the day surely cannot be far away when every case that is clearly diagnosed and fails soon to respond to conservative agents will be operated on.

Before we can understand the full value of the operation required, it is necessary to understand exactly what the demands in a case of this kind are. (1) The operation should be chosen which gives the patient the best chance for cure with the least risk, and speed should be no little requirement in making a decision. (2) The primary focus, the feeder, should be completely eradicated if possible. This should be done as a part of every routine excision of the glands. (3) The next desideratum is to remove all of the infected tissue, and this with as little rupture of the glands and smearing their contents as possible. (4) Block the way before or during the operation in such a fashion as to preclude all possibility of infection being carried now to other tissues through the lymphatics or afterwards should local recurrence result.

We are drifting away in surgery from typical operations perhaps more than ever in our history. The typical operation is very nice, but the real surgeon operates regardless of the typical in conformity with the facts and the requirements present. So that it does not for the chief end matter whether one does anybody's operation, so he gets the idea and accomplishes the above-named ends in the briefest time.

It is argued "the glands are needed in the body." But if they can never satisfy the need, and are a menace to life, they are worse than worthless. They should be removed. It does no harm to remove functionless glands, it does good to remove diseased ones.

Again, there has been, is yet, much incomplete surgery done on the neck from timidity and the difficulty of dissection. It has been shown especially by Crile that this timidity can be dispensed with if we know our ground, and that the neck contains scarcely any structure that cannot be dispensed with when it must be

sacrificed in the excision of a pathological condition. Of all, cancerous and tubercular glands of the neck are the worst. And he who attempts either must be prepared to get every vestige of the disease and spare not. Crile's own words are as follows: "The only tissue that must be respected, to the extent of determining the breadth of the excision of the growth, is the common or internal artery; that the sternomastoids, one or both, the omohyoids, the digastric, the sterno-thyroid, sterno-hyoid, and platysma muscles, either on one or both sides, need not be considered as of functional importance in weighing the chances for successful eradication of a malignant growth. On the same ground, neither the internal nor the external jugular, on one or both sides, need be considered, nor a unilateral excision of the vagus, of the phrenic, or of the hypoglossal." (Surg. Gyn. and Obstet., Vol. V., pp. 92, 93.) Crile said the above concerning the excision of cancer, but it serves well the purpose here to show what latitude the surgeon has in the neck, and removes all possibility of an excuse for attempting a radical and finishing with an incomplete excision of the tubercular glands. To put it otherwise it enables the operator to plan his work so that from beginning to end he may work in a definite line, and when he has finished he may know that not only all the glands he attempted to remove are removed, but the fascia and lymphatic vessels are dissected out with them. How much simpler, how much more accurate this method. It requires no logic to prove, no philosopher to understand the superiority of a well-defined plan as against the indiscriminate picking out of such glands along side of and between the muscles, which, as any surgeon who has practiced it, would be compelled to admit, leaves frequently, I believe nearly always, tissue that is diseased. This is the cause of our numerous post-operative recurrences, and the other cause is the failure to remove the nidus from which the nodes receive their supply of tubercle bacilli. Let me state the point clearly: In a case of enlargement unmistakably of one or two glands simple enucleation is to be recommended. When the glands are numerous, then there can be no question that the block dissection of the diseased group gives the best prognosis. We do not consider scars in dealing with malignancy, though we attach great importance to it—to the extent of halfway removing the glands diseased—in

tuberculosis. The complete removal of the tissue by single dissection may sacrifice more structures, but it certainly does not leave behind it the infected peri-glandular tissues, lymph-channels that have been invaded, and small dangerous infected lymph-nodes that must often escape the hands of him who trusts to enucleating the glands one at a time; besides the pressure used in enucleating them often ruptures caseous or suppurative glands in the field of operation. By this method the lymphatic routes are largely obliterated, and any local recurrence or overlooked infected glands cannot pour their contents into the mediastinum and there produce a hopeless glandular involvement. The scar may be greater, but there cannot fail to be fewer recurrences and less dissemination. The delay of recurrence and the chances of self-deception are great; but when many operator's statistics show almost as high frequency of death from tuberculosis in those who have been operated on as in those who have not, and they only who do radical work have any sort of favorable late results, and these are directly in proportion to the completeness of their work, then do we begin to understand that no removal or complete is to be selected.

From our present knowledge it seems wise to administer tuberculin to those who have had tubercular tissues excised much on the same ground as X-rays are utilized after excision of cancer.

HOW BEST TO UTILIZE OUR KNOWLEDGE OF THE COMMUNICABILITY OF TUBERCULOSIS.

H. P. COILE, M. D., KNOXVILLE.

TO KNOW the cause of disease and remove it is to prevent the disease.

When Koch, in 1882, discovered the Bacillus Tuberculosis, theoretically he made possible the final extermination of the great white plague. That it will ever be accomplished admits of

grave doubt. If it were possible to diagnose every case before the period when the patient could infect others and isolate it, at the same time utterly destroy every bacillus afterwards given off by the individual suffering from tuberculosis, then the disease could be completely eradicated.

The nearest approach to this impossibility will unquestionably give us the highest attainable results. The great body of physicians are already trained to understand the value of making an early diagnosis, but unfortunately many seem unable to make a diagnosis until the lives of others are imperiled. It would seem, therefore, that at this point there is room for more thorough and conscientious work on the part of medical teachers and in our medical societies.

From the very nature of the method of onset of the disease its insidious and elusive character tuberculosis is often far advanced before its true character is determined. Thus the patient has been innocently and ignorantly distributing the bacilli. The fact that the patient is obliged to earn his daily bread makes his isolation impossible until provision is made for this.

I do not believe that absolute isolation is practical, but comparative or partial isolation is. This, however, cannot ever be brought about except by making provision for the care of the consumptive poor in hospitals or sanitaria.

It is in the home where the disease is usually contracted. No proper supervision of cases can be had as a rule so long as the patient remains in the home. It is needless to even state here why this is true. It follows, then, that if we would make any great advancement toward staying the progress of this mighty foe to humanity, some plan must be adopted for the establishment and maintenance of institutions for this purpose throughout the land.

The undertaking is gigantic, and is to be accomplished by degrees. It is a great thing to build hospitals for the consumptive, but the matter of the removal of patients from their homes to these institutions is yet a greater undertaking. It is not to be accomplished by compulsion no more, perhaps, than compelling a patient suffering from any other disease to enter the hospital for treatment.

The public must be educated to understand the benefits to be derived from such a course. When, and in proportion as, this is

done the public pocketbook will open up, and suitable buildings be erected and maintained. The people will understand, and patients will *seek* the benefit of the institutions.

This campaign of education is already going on, and its effect to a certain extent is being felt. The great anti-tuberculosis meetings that have been held from time to time throughout the country have already accomplished much good. The great International Congress on Tuberculosis, to convene in Washington, September 21st, will doubtless result in giving an impetus to the work that will be felt the world over.

The immediate beneficiaries of these meetings are, however, the physicians, who are to take the lead and direct the great crusade. Important as this is, it is probably not more so than the education of the common people. These are to be educated to accept the great benefits wrought out for them by medical science. It is more difficult to reach untrained minds with such great truths. It is possible, however, to give the people the requisite amount of information for practical purposes along the lines indicated. There are many ways of doing this. Circulars containing practical suggestions, addresses by physicians, ministers, lawyers, and others before student bodies and public exhibitions and demonstrations are practical methods of giving information.

The way, however, that will give the greatest results in a short time is for physicians to use the daily newspaper and current magazine. In the present day and generation the most potent agent in moulding public sentiment is the newspaper. Scientific articles pertaining to practical subjects effecting the public are always accepted and published. Most families, especially in the city, take and read one or more daily papers, and nearly all a magazine. They read all that is published, including the ubiquitous patent medicine advertisements, and believe most of what is published.

The objection is raised that such a course is unethical. This is not necessarily true. It can be done without any violation either of the spirit or the letter of our ethics. Besides, here is a great emergency to be met. Thousands of our race are perishing for want of the aid our profession knows how to give them. The public must be informed, made to know the nature, cause, and prevention of tuberculosis before great progress can be made.

The common people must be made to understand the benefits to accrue to them by the sanitarium management of tuberculosis patients. Then will the public purse strings loosen, and money be appropriated for the care of the tuberculous poor. Rich men with more money than they know what to do with will be induced to establish consumptive sanitaria.

It is gratifying to note that progress is being made, and that occasionally a State, and again a municipality, has undertaken the work. These are good beginnings, and greatly redound to the credit of those who have taken the lead in the work. They are examples to be emulated. To act quickly and efficiently throughout the length and breadth of the land is the necessity that confronts us.

It is estimated that the United States is losing on account of tuberculosis \$300,000,000 annually. This amounts to about \$4.00 each for our entire population. Dr. Lawrence F. Flick says: It would scarcely cost us \$2.00 a piece the world over to wipe out consumption. From purely an economic point of view it would be a wise thing on the part of our Government to expend a large sum annually in combatting the disease.

We are the richest nation on the face of the earth, and millions could be spent from our National Treasury to aid in stopping the devastation caused by consumption. The American Medical Association, through a committee of one hundred, made an appeal to President Roosevelt for the establishment of a National Department of Health. It was asked that the head of this department should be a member of the President's Cabinet. A position of this kind filled by a competent medical man, with a sufficient appropriation of funds by Congress would be of untold benefit in the great crusade going on against tuberculosis. Then the organization could be systematically effected throughout the country. It is to be regretted that the President did not act favorably on the matter.

While it is desirable to have a national head, and a complete organization under this head, it is not indispensable. The responsibility as it is now rests upon each State, county, municipality, or community, and this is not without its compensatory features. Any community will be directly benefited by properly caring for its own tuberculous patients.

The State, county, or municipality, from a purely economic standpoint, can well afford to provide consumptive hospitals or sanitaria, and from a humanitarian point of view it is imperative.

Present conditions are deplorable, and in the light of present-day knowledge, a stigma. Our consumptive poor are practically *abandoned* to their fate, and left to slowly die in filth and poverty. In ignorance and helplessness they expectorate promiscuously in every part of their homes, each time giving off a few millions of bacilli which in turn infect the other occupants of the home.

There is absolutely no hope of benefiting a person so situated, nor of preventing the spread of tuberculosis until this class of patients can be cared for away from their homes. The populace must be made to understand this, at the same time that the work preparatory for their care in properly located and equipped sanitaria is being carried on.

The garden farm, located sufficiently near the populous centers, is in most instances the best kind of consumptive sanitarium. A few acres of fertile and well-watered soil selected with reference to obtaining an abundant supply of sunshine and the most perfect sanitation should be obtained. Upon this is to be built an administration building and numerous cottages of modern design, with special reference to the uses to which they are to be put. The consumptive sanitarium must be built also with reference to its frequent disinfection, etc. It must be a model of *neatness* and *attractiveness*, so that patients will desire to come and remain there. Provision must be made for the care of all classes of patients. It is needless to say that the administration to be successful must be left to competent physicians.

In closing, I again urge the necessity of educating as rapidly as possible the masses along the lines above indicated. Teach them the nature of the disease. That it is caused by a germ, for the most part given off in the patient's expectoration. Teach them how to destroy these germs, and thereby prevent other cases. Teach them the value of sunshine and air, and the danger of living in dark, dirty, and ill-ventilated homes. Tell them all that we know, in any and every way that we can, and create a universal interest in the subject.

MARRIAGE AND INTERMARRIAGE OF TUBERCULOSIS SUBJECTS.*

I. A. M'SWAIN, M.D., PARIS.

THE propriety or impropriety of the marriage of persons affected with tuberculosis depends largely on the influence of heredity in the production of the disease. To a considerable degree the factor of heredity has been discounted since, in 1882, Koch discovered the true nature of the disease to be that of bacillus tuberculosis, and more and more importance has been attached to the communicability of the disease.

Possibly the pendulum of thought has gone a little too far in this regard; too much emphasis on the contagious nature of the malady; too little on heredity as the predisposing cause.

It is well that the equilibrium be maintained in the battle now being waged against the plague, and that none of the causative influences be overlooked. After all that has been said and written in regard to contagion and environment has been admitted, yet we are forced back again to recognize heredity, or, if you please, an inherent weakness or impaired vital resistance, as one of the most potent factors to be reckoned with. In spite of our wishes and reasonings to the contrary, we are, in a measure, what our progenitors were. There is no escape from the unerring laws of nature that the characteristics of the fathers and mothers, be they physical, psychical, moral, or pathological, are indelibly stamped on their offspring.

We shall not stop and undertake to prove this. We shall not give an array of statistics, or reproduce past history, or introduce new evidence to show that the posterity of tuberculous subjects are in every respect far more liable to the disease, and that it is more difficult of treatment, and decidedly more fatal, than when it occurs as the result of other and more immediate causes, and we believe that after admitting and endorsing all that is known of the proximate causes, such as contagion, bad sanitation, over-crowded tenements, the depressing effect of other diseases, alco-

*Read by title.

holic and other excesses, yet the factor of hereditary predisposition outranks any one, if not all, the causes that contribute to the propagation of this destroyer of the human race. This opinion has been held, and is today held by eminent biologists. A very recent statement made by Mr. Pearson, of London, sustains this view of the subject.

The force of heredity being admitted as a fact, how shall we deal with it? If we cannot in some way set aside the greatest of all causes in the development of an evil, we shall find ourselves continuing the herculean task of building dams across a stream to find them broken over and over again by the resistless tide from the fountain source. To dry up the fountain head, to put a stop to the propagation of human beings who bring with them into the arena of life, the peculiar liabilities or susceptibilities to the disease that will soon or late prove their untimely exit from the drama of human affairs, would seem to a rational mind to be not the *last*, but the *first* undertaking in any campaign waged for the extermination of the disease.

To attempt to do this involves an interference of the marriage relationship. It presents for discussion the problem of human liberty, conflicts with what for ages has been deemed the finer sensibilities of sentiment, and invades the sacred precincts of love; makes puerile much of the poetry and song of the ages, and turns romance into stern reality. Does away with the dogma that matrimonial alliances are made in the spirit world, and of natural affinities; injects confusion into the social realm, and runs counter to long-established habits and customs of the people. It is a great task beset with many difficulties, yet a cause so just that the pressing needs of the hour force the medical men, humanitarians, and political economists to seriously consider the question: Ought a man or woman afflicted with consumption marry, even though the opposite mate be healthy? All science and experience answers that they ought not, for the unfortunate subject of the disease is liable to infect the husband or wife by contagion, and by reason of transmitting to their children the peculiar weakness to fall a prey to the disease.

If a tuberculous man marry a healthy woman, he subjects her to the danger of contracting the disease, and *vice versa* by the

same rule, and this in itself ought to be a sufficient reason to prevent such alliances, even if the evil stopped at this point.

We are now engaged in trying to prevent the spread of the disease by the enactment of laws, State and municipal, against spitting, against personal contact with tuberculous patients, by the erection of special hospitals or wards for them. We urge sanitary inspection of schools, and recommend that children with the disease shall be forbidden to attend school, that nurses, and even physicians, that are known to be tuberculous should not practice their profession, and yet the closest intimacy and personal contact, that of the marriage bed, and the daily and hourly contact with the diseased husband or wife, is unrestricted, and no voice is raised to prevent the worst of all causes for the dissemination of the disease. We could hardly dare to invade the domesticity of a household and dictate the management of family matters, but we should try to prevent the establishment of such a dangerous source of infection by insisting that in celibacy is the only sane and safe condition for any one who has the disease, and by education and legislation bring about a reformation in the public mind on the subject.

If the dangers of tuberculosis occurring in the offspring are so widespread by having *one* parent with the disease, it is intensified fourfold when *both* parties to a marriage contract are suffering from the disease. The offspring of such an alliance is almost solely at the mercy of the disease. It might be possible for a child having only one tuberculous parent to escape, and it is admitted that they frequently do, especially if that parent be the father. But if both parents are tuberculous at the time children are begotten, they will have small, if any, chance of escape.

It has been noted by the most casual observer that the children of this class come into the world with the cachexia well marked, many dying in the first few months of some form of tuberculosis, others may live until puberty, and a few may lead a semi-invalid life and drag out a weary existence, terminating before the meridian.

There are other subjective reasons also that should prevent consumptives from marrying. It is generally admitted that sexual indulgence is injurious to persons afflicted with the disease, and it is urged as one of the difficulties of the home treat-

ment of patients, that they frequently will indulge their passions to excess, and that such exercise is detrimental. It is especially injurious to women afflicted with the disease to bear children. The vital energies spent in childbearing and lactation need be conserved in the interest of the woman in order that she may battle with the disease in her own system.

It is a fact also that tuberculous subjects often are known to have an inordinate desire for sexual gratification, and the over-indulgence but hastens the progress of the disease. For their own welfare, then, to say nothing of the welfare of others, tuberculous subjects should not marry.

But gentlemen, what can be done to remedy this evil? How shall victims of the disease be prohibited from entering upon the marriage relationship, and of the propagation of their species? Something may be accomplished by education. A small percentage of the people will listen to reason, and will conform to well-defined precepts. But it must be confessed that but a small minority can thus be influenced to deny themselves for the common good. If mankind could be induced to abandon selfish purposes, and each strive for the common advancement of the race, if all were prompted with a desire to serve rather than be served, willing to suffer rather than to entail suffering on others, then would this problem, as well as many others, be solved. But from the beginning until now this characteristic has not been a prominent one in the annals of the history of the race. So that it has been found necessary to the progress of civilization and the protection and benefit of society that man must be governed by law. That there must be restrictions thrown around his conduct, that his native savage instincts must be abridged, and that such of his practices as were inimical to the public welfare must be abolished. In his baser self it is true that he has ever protested against law upon the ground of personal liberty, and no advancement has ever been attempted that did not provoke his indignation, and was denounced as an infringement of his personal freedom, for law in its final analysis is, and has always been, a curtailment of individual rights, a barrier to personal liberty. Man is free from the operation of law so long as his actions do not interfere with the welfare of his kind, but thus far may he go, and no farther.

We conclude, then, that if the marriage of a certain class en-

tails disease on posterity, and that such diseases being communicable from one to another, the descendants that result from such marriages being a menace to the community at large, the marriage of such persons ought to be interdicted by law.

I am not here to suggest enactment by the government of a prohibitory statute in this regard, nor to describe the operations of such a law, but am disposed to believe that to be effective national legislation would be necessary, and owing to our complex society, and the present status of popular feeling, the time is perhaps hardly ripe for the experiment. But steps should be taken to impress the public mind of the folly of the marriage of consumptives, and of the impossibility to stamp out the disease so long as the victims do it, are multiplied by the unerring laws of heredity. There must be a limitation to the propagation of consumptives, or of individuals who are strongly predisposed to it, every one of whom becomes a new focus for the dissemination of the disease, or a hundred years from this date the war against it will have just begun. Let us then by every means give out information along this line. The distribution of literature among the people in language that they can understand. Public exhibitions can have a large influence on the public mind. School and home training is important. Public lectures create interest as perhaps nothing else can. Physicians in their close contact with the home should certainly impress the young people of the danger of the marriage of consumptives, and strongly oppose it. And some time in the future when the beneficial effects of education are manifest, and it shall have been observed that sanitary laws properly executed have curtailed the ravages of the disease, then for the incorrigible ones who will not be governed by reason, and who hold to the dogma that ignorance is bliss, and therefore will not be informed, let the dignity and majesty of the law be invoked and teach them that it were better for a few to practice self-denial than that many should suffer for their indulgence.

We do not look on celibacy as a punishment for these cases. Indeed, we insist that for their own welfare it is far better not to marry. Thousands of persons voluntarily live in single blessedness and make themselves useful citizens, and appear to extract as much comfort and pleasure from life as many who take the matrimonial vows.

Tuberculous subjects should be taught in the most impressive way that to marry and intermarry will inevitably bring much sorrow to the household; that they will but hasten themselves into untimely graves, to leave perchance behind them a sickly posterity that will be liable to succumb to the disease. Let us incorporate high ideals in the minds of the young people. That their purposes in life should be to bless and elevate mankind; that the temporary joys of the marriage of diseased persons are soon to be overshadowed by thick clouds of sorrow and disappointment. Better endure the loneliness, and even the stigma of single life, than to behold the destructive sequellae that follow in the wake of the marriage of persons of diseased constitutions.

It was the custom of the ancient Greeks to destroy the idiotic and mentally unsound. As a result they became a nation of the most profound scholars of the pagan world. The intellectual impetus given the world by their philosophers is felt to this day.

The ancient Germans destroyed the physically deformed and weak offspring, the diseased and old were abandoned to their fate, and the result was a race of Teutonic Giants compared with whom the nations round about were as pygmies, and before whom the well-ordered Roman Legions paled and trembled and fled. The blood of these sturdy men circulates in the Anglo Saxon race, the most renowned people of the world, past, present, and future.

If the victims of disease were prevented from propagating their species, by the close of the present century, science will have stamped out the most fatal and dreadful maladies that afflict the race. Nemesis ever in pursuit of the hapless victims of hereditary influences would cast her shadow no longer over the pathway of human progress, and mankind would come into possession of his own. Three score and ten years would be regarded as soon enough for him to lay down to rest. Centenarians would linger awhile longer to behold the beauties of the old earth, rejuvenated and purified by sanitary law, while hand in hand the leaven of civic righteousness operating in the moral and social world would purify and ennable the lives and consciences of men, and life would partake of the joys and transports of Eden restored.

BOVINE TUBERCULOSIS.

M. JACOBS, V. M. D., KNOXVILLE.

SINCE the discovery of the tubercle bacillus by Koch investigation along the lines of bovine tuberculosis has received a great deal of attention by noted scientists in nearly all civilized countries, due of course to the importance of the two great questions involved, viz.: :

- (1) The intercommunicability of human and bovine tuberculosis.
- (2) The economic relation of tuberculosis to lower animals.

To discuss in detail these two great questions would not be permissible at this time, I will however in as few words as possible endeavor to show the conclusions that have been drawn on some important points in connection with the study of bovine tuberculosis. I have selected bovine tuberculosis for several reasons.

1. Tuberculosis is more prevalent in cattle than in any other variety of domestic animals.
2. The relation between man and cattle is rather close, especially in so far that he consumes the meat and milk from these animals.
3. Cattle are frequently the source of infection in other animals, especially swine.

As a result of these three important points control work of tuberculosis in cattle has assumed a stage of considerable magnitude within the last few years, and this undoubtedly has its significance to public health as well. As to prevalence, tuberculosis most frequently occurs in the dairy types; not that they possess any greater degree of susceptibility than other breeds, but they are subjected to different environments, such as will readily favor the spread of infectious and contagious diseases. In some localities this disease is extremely prevalent, while in others again it is quite rare, although there is no country that can claim an absolute freedom. Fortunately in Tennessee tubercu-

losis amongst cattle is less prevalent than in many other States. I refer here especially to the extreme rural districts.

The diagnosis of tuberculosis in cattle has been made comparatively simple, by means of the tuberculin test, which in the hands of one who is qualified, is extremely accurate no matter how small the lesion may be. This test consists in the subcutaneous injection of tuberculin, a glycerine extract of the tubercle bacillus, which in the tuberculous animal is followed within 8-12 hours by an elevation of temperature. Ordinarily a rise of two degrees Fahrenheit, or more, is considered a reaction, and the animal tuberculous. Recently two other diagnostic methods have been advocated, namely, the cutaneous and ophthalmic reactions with tuberculin; however, for the present the regular tuberculin test is to be preferred in its application to cattle. With such an accurate means of diagnosis the extermination of tuberculosis from a heard is not a difficult problem. During recent years the prevalence of tuberculosis in swine has become more and more marked, and we generally notice this in conjunction with an increase in the spread of bovine tuberculosis, which naturally suggests the transmission of tuberculosis from cattle to swine. The source of infection is almost invariably in the milk or manure from tuberculous cattle.

It has been positively proven that milk from tuberculous cows may contain the germ even though the udder shows no apparent clinical lesion. Again, it has been recognized that the bacillus of Koch is found abundantly in the fecal material from tuberculous cattle. Consequently if we consider the habits of the hog we may easily recognize the source of its extreme prevalence, when they are kept in conjunction with a tuberculous herd of cattle. As to whether or not bovine tuberculosis can be transmitted to man is a question in which you no doubt are all more or less interested. From our present knowledge and observations we are compelled to admit that tuberculosis in cattle and man are intercommunicable. This point was strongly disputed by the eminent Dr. Robert Koch at a meeting of the International Tuberculosis Congress a few years ago, but his position was bitterly attacked by noted scientists. The result was the approval of the continuance of all measures to suppress such a transmission of tuberculosis. The greatest danger to man from such a source

lies in the meat and milk from tuberculous animals. In making this statement, the question which immediately occurs to us is, Why is not intestinal tuberculosis in man more frequent as a result of such an infection? But it is now a well-established fact that such a channel of infection is not necessarily followed by a primary lesion in the intestinal tract, but may occur in some distal part of the body or organs, such as the lungs, articulations, etc. In other words, the tubercle bacillus may pass through the digestive tract to some other part of the body without producing an apparent clinical lesion on the intestinal mucosae.

Meat from a tuberculous animal is less dangerous than milk to the consumer, as it is generally subjected to a high temperature before being eaten, while milk on the other hand is mostly used in a raw state. The contamination of milk is an interesting point, as it suggests to us again the elimination of the tubercle bacillus, consequently milk is contaminated with this organism through the udder itself, or with the manure from tuberculous cows, which, as I have already intimated, contains the tubercle bacillus, consequently the foregoing points are of the utmost importance in the production of pure milk. Another interesting phase in the study of bovine tuberculosis is the gratifying result being obtained during the last two or three years by protective inoculations against this disease. This important work was first started by Pearson in America, and von Behring in Europe. It consists in the intra-venous injection of cattle with an attenuated virus of the tubercle bacilli of human origin. I will not go into detail to discuss this method, other than to say that even though it is still in the experimental stage, the point has already been well established that cattle can be successfully immunized against bovine tuberculosis. In addition, some curative effect has also been recognized when this method of vaccination is applied to already tuberculous animals; however, this has not been as firmly established as the former. With the advantage of an easy and accurate means of diagnosis, coupled with the advantage of animal slaughter of diseased subjects, and within a comparatively short time the successful and practical method of immunization, we are in a position to successfully cope with this disease in cattle. These things cannot but help to have their influence in success-

fully controlling tuberculosis in man, and after all it brings us face to face again with the importance of the study of comparative medicine.

DISCUSSION OF THE SYMPOSIUM ON TUBERCULOSIS.

(PAPERS BY DRs. ABERNATHY, LITTERER, BRYAN, COILE, JACOB.)

DR. F. B. REAGOR, of Shelbyville:

Mr. President—I rise to endorse what Dr. Abernathy stated—that it seems that our County and Municipal Boards do not know how to spend money to prevent other contagious diseases than smallpox. Recently, in most every county in the State, they have spent large sums of money to prevent the spread of smallpox, from which there may have been one or two deaths. The deaths from consumption in the same communities during the same time have been greater than this, and if I mistake not, the city of Nashville has recently spent five thousand dollars for the prevention of the spread of smallpox without a single death having occurred from that disease. I think the report of the State Board of Health shows about a hundred death from consumption in the same city, without any effort having been made to prevent the spread of this disease, and, it seems to me, it might be well for Boards of Health to give more attention to the prevention of the spread of consumption, which is attended with high death rate, than to other diseases, like smallpox, which has been attended with a very low mortality. I wish to endorse that fact brought out in Dr. Abernathy's paper.

DR. CHARLES P. McNABB, of Knoxville:

Just a word or two with reference to Dr. Abernathy's paper. He did not touch on two or three very important matters in the prophylaxis of tuberculosis, and one thing he did mention I consider entirely impractical and unnecessary, and that is the isolation of the patient. To isolate a patient is certain to produce objection on the patient's part, and it will provoke any amount of resistance to the execution of any measures or law that may be enacted for that purpose. If a patient is properly instructed in the matter of caring for the sputum and the feces and urine, sterilizing and destroying all of them, if he will carry a pad of bichloride gauze and hold it before his mouth when he coughs, there is very little danger of tubercle bacilli being disseminated by him. The sputum should be destroyed before it is dry, and care exercised against contaminating the clothing.

If secondary infection of the intestines does not occur, bacilli are carelessly swallowed by many victims, and it is essential that fecal discharges from a tuberculous patient be sterilized the same as the sputum should be. The same course should be pursued with the urine as urogenital tuberculosis is very common in generalized tuberculosis. If

that is done, it is unnecessary to isolate the patient, which would be inflicting a needless hardship upon them.

Another thing which is quite necessary is house fumigation. How many times do we see houses in which patient after patient dies of tuberculosis, and that too without personal association. In a house in East Knoxville I had five cases, three of them in different families, occurring in three years' time.

DR. T. J. HAPPEL, of Trenton:

I do not want to raise a discordant note, but I do know that our very extreme views in regard to the communicability of tuberculosis are producing a panic among a great many good people, and I desire to call attention briefly to an article in one of the recent issues of the *Journal of the American Medical Association*. In this article one of the greatest authorities on the communicability of tuberculosis calls attention to the fact that heredity is being entirely ignored in our discussions on tuberculosis in these days. We are getting away from that fact, and I regret that Dr. McSwain's paper upon "Intermarriage of Tuberculous Patients" was not read, on account of his absence. I do not think we should get away from the idea of the inheritance of tuberculosis. I do not want to be misunderstood on this subject, but undoubtedly we inherit a dyscrasia, which gives a child, a man, or woman a susceptibility to these tuberculous germs. People are being impressed too much with the idea that there is no such thing as heredity in tuberculosis. We know that is not true. We know that there are families in which the children die from tuberculosis; they have not contracted it from the outside world in the sense that we are now thinking, but they get it because they have inherited that dyscrasia. I am calling your attention now to the subject-matter of this article, and am not attempting to put my own views before you. Children get tuberculosis because the germs of the disease are scattered about, and if they had been destroyed, the children would not die of tuberculosis, but of something else. We want to raise strong, healthy, vigorous men and women, so that they will resist the tubercle bacilli. I know of a case in which a young man, rooming with a nephew of mine, contracted tuberculosis in the city of Nashville. While attending medical school, sleeping in a boarding house, he slept on the side of the bed next to the wall where a tuberculous patient had been expectorating, and contracted the disease in this way. My nephew, who slept on the other side of the bed, did not contract it. I have known of a family of negroes in the younger days of my practice who were wiped out by this disease. I have seen a whole family wiped out by being shut up in a badly ventilated house where they expectorated and the germs were diffused through the air of the room, and they were inhaling them, thus getting the full benefit of the poison.

I rose particularly to call your attention to the article I have referred to. Let us not ignore the question of heredity in the communicability of tuberculosis entirely.

DR. JERE L. CROOK, of Jackson:

I am very sorry that the last paper of this symposium was not read, because I understand it dealt with the subject of legislation regarding the intermarriage of tuberculous subjects. This class should be eliminated from the problem of reproduction when we know they are not worthy either mentally or physically. The time may not be ripe for such legislation, but the time is not far distant when people who are the subjects of tuberculosis, who are the subjects of syphilis, whose criminal tendencies are such that we need not expect any good from their offspring, will be denied the privilege of propagating their species.

There is one other thought that has not been advanced along the line of prophylaxis, and it is this: The surest guarantee of a long life, and the best preventive of disease, as we all admit, is a sound, vigorous, properly developed body. That is something we will all give assent to. If the time be not ripe for legislation in regard to the marriage altar, the time is ripe to develop the offspring of such marriages as have occurred, and properly develop our own offspring. Therefore, I believe a proper thing for the medical profession of America is to urge compulsory physical training in the public schools. No one can possibly object to this on any ground. I think this compulsory physical training should be inaugurated in every public school, college, and university all over the world. When manual training was first proposed, it met with opposition, but after it was inaugurated in the various schools of the country, it met with instant favor, and the alacrity with which it was welcomed by the people indicates how a further step in the same direction would be received. Compulsory physical training in public schools would mean that the Boards of Education of the various schools should have competent physical directors, who should be licensed and regular graduates of medical schools, and specialists in the art of physical culture. These directors should weigh and measure each pupil and find out in what direction deficiencies lie, prescribe physical exercise to bring them up to normal standard, and see to it that those muscles that are imperfectly developed are properly developed. Jumping and running exercises should be prescribed. The director would keep up with each individual pupil, and at the end of the college course he would be turned out a well-rounded physical individual, amply competent to fight the battle of life and to withstand the onslaughts of disease. One way to prevent tuberculosis or the onslaughts of this insidious foe is to properly develop the body. When in perfect health, we resist the germs of tuberculosis, as well as other germs, as we go through life. The time to begin to battle against disease is in these earlier years of life, when the body is supple and pliable and easily trained in any direction in which we may desire it to be trained. Our hope for the future is to train physically the children in this country, of whom more than eighteen millions attend the schools.

One thought more: Every teacher in a public school should be subjected to a rigid physical examination before he is allowed to have charge of the pupils under his direction.

DR. C. J. CARMICHAEL, of Knoxville:

There is no doubt but that we as medical men appreciate the magnitude of this subject. There is no doubt, too, but that we as medical men appreciate the danger of this disease. Unfortunately, most of the information which has been given has come to us as physicians, and has not been put before the public or the laity in a way that they can grasp it. I believe I am safe in saying that there are not ten per cent of laymen who recognize the fact that tuberculosis is a communicable disease, that it can be contracted in the way in which Dr. Happel has mentioned. We have been prone to stand back, as Dr. Coile has suggested, on account of ethics, and have made no effort through the secular press, through verbal communications in the homes in which we have gone, to educate the people to the fact that they can contract the disease from other members of the family or from an infected room. All that has been said is more or less idealistic, but we well know how difficult it is to force people to do a thing that they do not understand. The question of forcing people into sanatoria, of forcing them to carry cuspidors, is difficult, and until we devise some means, whatever it may be, whereby we can educate the common people as to the importance of this subject, and as to the fact it is a communicable disease, and that it can be contracted from coming in contact with other patients, we will not be able to do much along idealistic lines. Sanatoria are all right, and legislation is all right, but people do not take to them until they understand their importance.

I advocate that our Society create an editorial staff to prepare material to be published in the daily press. This material is not to be published over individual signatures, but through the authority of the Society, or through the authority of the Committee on Medical Legislation, or, if you choose, do as one of the members of our Society has done, have printed slips of instruction regarding the salient features of this disease, and distribute them in homes, or put it into their hands through the members of the Secretary of the Board of Health under the guise of authority, teaching them that this disease can be prevented, and in that way we can lessen the mortality, and will have made an important initial step.

In our own State the mortality from this disease is staggering. We have one death out of every six or seven that is due to tuberculosis, and as our President has stated, today in the State of Tennessee we have a higher mortality than any State save California. If New York City can reduce its mortality six per cent in one year, we can do much toward eradicating this disease. We must educate the people that it is preventable; that it is communicable. When we get the common people to understand they are liable to take it from some one else, they are as

willing to take steps toward prevention as they are to be vaccinated. The disease is very insidious. It creeps on them so slowly, and death is not as sudden and severe as in other conditions, so that they do not appreciate the seriousness of this disease. I think we must educate the laity before carrying out legislative measures and of forcing the people by legislative enactments.

DR. S. S. CROCKETT, of Nashville:

There have been some interesting generalities indulged in in this discussion, and yet some interesting points have been brought out with reference to tuberculosis, but when it comes down to what plan has been proposed for the prevention of it, I think we can safely say no definite plan thus far has been suggested. We are, in a large measure, responsible for that, too. It is not wholly the laity. We cannot say it is the patient himself, but we have to assume a certain degree of responsibility for the present condition ourselves.

In dealing with the problem of tuberculosis, two classes of people are concerned. First, the man who has not got tuberculosis. Second, the man who has got it. In the successful combat of this disease, the whole problem revolves around the point in offering hope; not punishment, not embarrassment, not isolation, but hope for the man who has not got it, and need not have it. Hope for the man who has it that he may get well. What are you going to do to the man who has not got it? There are several important facts which should be put before the citizens in the State. The first fact or proposition is that if the husband does not come in contact with the germs of tuberculosis; nor his wife, nor daughter, none of them will ever have the disease. Again, some contract the disease more easily than others. It is always contracted, hardly ever or never inherited. Young children born of tuberculous parents may contract the disease very soon. Some families are more susceptible to the disease than others. People should be taught that the disease can be prevented, and that if all the tuberculous sputum from all patients throughout this country were continually destroyed, tuberculosis would soon disappear. We can say to these people that if the germs come from the sputum of tuberculous patients, and it is destroyed, they will not have consumption. I never did have very much confidence in any chemical disinfection. I have never felt secure in going into a place where a little formaldehyde gas had been injected through the keyhole. There is but one way to destroy the germs of tuberculosis, and that is by fire. Tubercle bacilli, until they are converted into ashes, are likely to be dangerous. If you impress that upon the minds of people who have not got the disease, and impress upon them the further important fact that tuberculosis is but a house disease, and that a house infected with it is a veritable hotbed, and that any person moving into it is liable to contract the disease, and thus disseminate it from house to house, you will have accomplished something. Scrubbing the walls and papering the house throughout should be done before the new family

moves into the house. The fact that tuberculosis is curable was demonstrated long ago. Thirty years ago, in making post-mortem examination on women in the city of Philadelphia, they found the healed scars of tubercular lesions in the lungs. These women had died of old age.

DR. WILLIAM D. SUMPTER, of Nashville:

Those of us who made our advent in the profession at the time when the tubercle bacillus had just been stained; and practiced among men who did not believe in the germ theory (and some of them do not yet possibly) had difficulties to contend with. We found that the diagnostician of pulmonary lesions was loth to admit the ravages made by the tubercle bacillus. I remember very well my first experience with this disease. It is a serious thing to a young practitioner, when he examines the sputum microscopically of a patient and it reveals tubercle bacilli, to have that patient snatched from him by a man who says to the patient: "You have no tuberculosis; I will cure you." I had that occur in my early practice in the case of a woman who came under my observation. After I had told her that she undoubtedly had tuberculosis, her husband, who at one time was a pugilist, came to me and said I had almost worried his wife to death. I said to him that there were undoubtedly tubercle bacilli in his wife's sputum. He said the whole family were worried, and I was worried myself. I did then what I do now, although I do not treat pulmonary tuberculosis cases, advised plenty of fresh air and tonics. I told him to go to the other two doctors and have them examine the sputum for tubercle bacilli, and see if they could not find them. They were found positively. I also said: "You say to those two men that they are either one of two things—fools or liars. They are either fools in that they do not know any better, or are liars in trying to deceive you and get your money for treatment." I have never heard from those two creatures from that day to this.

Less than two years ago a patient came to me with a cold, clammy perspiration. There were nodes under the axilla; there was a typical afternoon rise of temperature, and certain pathognomonic premonitory symptoms. The sputum seemed typical of tuberculosis. In a short time after I saw him the sputum was examined, and in a couple of days or more, the sputum having been sent to the health office for report, I said to this man: "You have tuberculosis." He went to one of the best practitioners in the city of Nashville, and was told by that gentleman he did not have the disease.

DR. GEORGE H. PRICE, of Nashville:

There are two points I desire to call attention to that have been overlooked in the discussion of Dr. Litterer's paper. First, the tubercle bacillus is proteid material with a fat element in it. Second, the tubercle bacillus does not pass out of the alimentary canal by the blood route. Those are two important and significant facts. As the tubercle bacillus is proteid material with an element of fat in it, it does not excite the

gastric juice, and it passes into the alimentary canal quickly. It does not go by the blood route; hence no disturbance of the epithelium is found unless there is some lesion there, but we do find it in what we call lymph nodes. How does the tubercle bacillus get in there? It goes by the fat route. It takes the fat route through the villi of the small intestine. With reference to fat globules, if these are taken in a fat diet into the stomach, the gastric juice does not attack the fat except in a feeble manner. It is only emulsified. As I have said, the tubercle bacillus passes through the villi of the small intestine, along with the fat-granules, into the lymph-radicle, and thus reaches the receptaculum chyli, and is finally poured into the circulation at the base of the neck.

When infected milk, infected cream, or infected butter is ingested, it is found in the lymphatics outside of the intestinal canal in five hours after ingestion if taken in conjunction with fat, but if put in with proteid matter, you get plenty of good gastric juice, which may destroy the tubercle bacilli. That is why we do not find it going by the blood route.

DR. J. W. BRANDAU, of Clarksville:

One point worth while mentioning. We all know the colored race is very susceptible to this disease. The danger I wish to call attention to is that of nurses who have the disease in the incipient form communicating it to the children of the family. I have more than once notified the family that the nurse had incipient tuberculosis, and advised their dismissal. I believe it is the consensus of opinion that the disease is not hereditary, but simply the tendency to it is hereditary. I believe that our campaign against this disease will have to be an educative campaign.

DR. A. B. COOKE, of Nashville:

There is one feature of this subject which cannot be discussed too often. Under the auspices of the National Tuberculosis Association an exhibit is being given all over the country. We have recently had this tuberculosis exhibit in Nashville for two weeks. It was in charge of a non-medical man, Mr. E. G. Routzhan, who is paid a salary by the Tuberculosis Exhibit Company for the purpose of educating the people as to the dangers, the preventability and curability of this disease. I speak of this because there is a message we are prepared to bring from Nashville to this Association along these lines. The work this man is doing is gratuitous and philanthropic. He does not expect to receive compensation, and I understand he will soon go to Knoxville to help Dr. Coyle's committee for the purpose of educating the people in regard to tuberculosis. During the two weeks he was in Nashville the meetings held by him were most interesting, all of them being open to the public and well attended. By means of photographs, reproductions, charts, and stereopticon, he presents the subject in a very entertaining and instructive manner. This man is very energetic, and will do more work in a day than any man I ever saw. This exhibit was viewed by more than

twenty thousand people in the city of Nashville. Mr. Routzhan published information regarding this exhibit in the daily press, and secured the coöperation of the Board of Education, Board of Trade, the Ministers' Alliance, Business Men's Clubs, Women's Clubs, etc.

I believe it would be a wise policy if every member here from East Tennessee, and from the outlying districts, made it known in his respective community that this exhibit will be in Knoxville, and induce the people to go to Knoxville to see it. The benefit they will derive from it will be very great indeed.

DR. Y. L. ABERNATHY, of Hill City:

As to the question of isolation, I spoke of it as being one of the hardest problems we had to contend with, because of the vast number of victims, and their vehement protest.

As a mild illustration I refer to the difficulties met in enforcing vaccination and isolation in dealing with smallpox.

Compulsory measures through governmental agencies (just as in eradicating other infections) will solve the problem.

The poor and ignorant must be cared for, by the wealthy and intelligent, as an act of charity, and self-preservation. In the capacity of nurses, waiters, cooks, etc., they are a constant deadly menace.

Perhaps a body of land in each county, with a sufficient number of cottages, camps, etc., and a sanitorium to meet the requirements of the population, with some kind of employment, farming, manufacturing, etc., for those able to work, so as to be made self-sustaining, furnishes the best and most practicable method of dealing with tuberculosis. Affords the best chance for recovery, and obviates the danger of infection.

DR. WILLIAM LITTERER, of Nashville:

Dr. Price has emphasized the very important point in explaining why tubercle bacilli pass by the lacteal route rather than by the blood route. He calls attention to the fact that it passes through the intact mucous membrane with the fats, which is carried into the receptaculum chyli, then up the thoracic duct, and is poured into the circulation in the left subclavian vein. The apex of lungs being less resistant it finds lodgement there. It is certainly a demonstrable fact that tubercle bacilli will pass into the thoracic duct with great rapidity when fats are fed, particularly butter. When no fats are taken, then there is an absence of the bacilli in the duct. It has been Behring's contention that almost all tuberculosis is contracted by taking in infected material through the food. I am not much in sympathy with this mode of infection as compared with the infection from actual breathing, although some lay great stress on Behring's contention. It is believed by him that young children early in life are infected with these bacilli, and that they remain latent until the age of puberty, when they get in their work, so to speak. They have reached that age where the vitality is a good medium for the growth of the tubercle bacillus.

In speaking of another phase of the subject, Dr. Jacobs, in discussing bovine tuberculosis, brought out the interesting point that tubercle bacilli are found in the feces of cattle. This I was not aware of, but I knew that in almost every instance in tuberculous human beings tubercle bacilli could be found in the feces. The idea, advanced by Dr. McNabb in the importance of disinfecting the feces, is well taken. Recent writers state that in practically every instance in which there is pulmonary tuberculosis, in examining the feces one will find tubercle bacilli in large numbers.

DR. W. A. BRYAN, of Nashville:

I want to say a few words about the matter of educating the people. I do not know whether all of you realize the fact or not, but Tennessee is considered one of the ignorant States in the nation. It stands third. When we have the president of a bank, worth five hundred thousand dollars, who gets up and says that all this stuff about germs is rot and foolishness, what can you expect of the man who lives in a six-dollar tenement house? In educational matters we must strive to gain your influence as citizens to help to gain the respect of the people. With regard to the tuberculosis problem, you have sons and daughters to whom you cannot teach isolated scientific facts and make them accept them as a whole. As a rule, they have very little or no respect for science, and the people out of whom we make citizens do not know anything about scientific facts. While we are giving instructions regarding consumption, let us encourage the idea of general education and the general inspection of scientific facts.

DR. COILE (closing the discussion):

I appreciate very much what Dr. Bryan stated with reference to the education of the people. In fact, that was the burden of my paper.

I am very glad to get the information furnished by our President, Dr. Cooke. I received a copy of the circular indicating that such an exhibit was going on. If I had been reading the Nashville papers, I would have learned more about it. I had supposed that it was something which was not strictly along proper lines, but I am glad to know that it is so valuable and instructive. I hope that this exhibit may come to Knoxville, and I would like to ask our President whether Mr. Routzhan contemplates coming here on his own responsibility? Again, does he bear the expenses of the exhibit himself?

THE PRESIDENT:

As I understand, he is the representative of the American Anti-Tuberculosis League, a national organization.

DR. COILE:

I am glad to hear that. I think the greatest obstacle to progress is ignorance.

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GEO. H. PRICE, CHAIRMAN.

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PURE FOOD AND DRUG INSPECTION.*

L. P. BROWN, NASHVILLE.

Inspecor for Tennessee.

ITHANK you for the privilege of the floor. My purpose in making a short address tonight is to give some slight account of what has already been done, and to bespeak your further kindly aid in my work.

WHAT HAS BEEN ACCOMPLISHED?

I assumed office on January 15th. On assuming it, Governor Patterson informed me, very plainly and emphatically, that he did not wish politics to enter into the administration of the office, but that it must be carried out for the greatest good of the work. This I have held strictly in mind, and shall continue to do so. Immediately on taking office I realized that the purpose and scope of a Pure Food and Drug Law—indeed, in many instances its very existence—were but dimly realized by a great number of the people most affected. Obviously under such conditions not only would it have been a very manifest injustice to undertake to find and prosecute as many violations as possible, but would have provoked undesirable antipathy to the law among the persons so arraigned, and probably a resort to every legal annoyance that could be arranged; serving, moreover, to render the law unpopu-

*Read by special request.

lar. Therefore my work has been, and still is, largely educational. I have talked to and written many trade organizations throughout the State, pointing out to them that I was their friend, and not their enemy; that we were fellow-workers for right conditions, and asking their hearty coöperation. I do not know of an instance wherein this has not been secured. I have found among all classes great interest in this work, and a very pleasing and gratifying disposition to hold up the hands of the authorities. This educational work has now covered a large part of Middle and West Tennessee, and I trust we shall soon have the whole State finished.

The appropriation of \$1,000.00 for equipment made by the last Legislature is too small to enable the complete equipment of such a laboratory as we ought to have, and it is necessary to supplement it by equipment belonging to other parties. Acting on my suggestion of a plan by which the interests of the State are perfectly safeguarded, the State Board of Health, within whose province this comes, authorized me, at its last meeting, to purchase needed material and install it in the same building in which my own quite complete laboratory outfit is placed, to the end that the latter may be used for the State's work. This arrangement will enable us to do as satisfactory work as if our State's equipment fund were larger.

So much for what has been done. As to future work, I would say that I propose to address myself to such an enforcement of the law as shall better primarily the public hygiene. The summer season is coming on, when milk and meats are hard to keep, and when preservatives therefore flourish. I propose to put an end to this class of violation, the former of which is the most despicable, but unfortunately one of the most prevalent with which we have to contend. I shall also devote considerable attention to the increasingly important soft drinks, especially soda water syrups, and the hygienic conditions of places of sale of such drinks. Confectionery and vinegars will also be looked into if possible. My aims, as will be seen from the preceding statement, are to spread knowledge of the law as much as possible—to give every person affected a chance to get right if he wants to, and if after such consideration for him he breaks the law, willfully and knowingly, then to bring all the powers at my command to punish him.

In the proper carrying out of the law the physicians can be of the very greatest assistance, and I beg your coöperation in every way. The physician is the natural guardian of the public health, and with the dawning and application of the new preventive hygiene this function becomes increasingly important. I therefore feel that your work lies closer to ours than that of any other element in the community, and that in seeking your aid I ask what will be freely given, as being of right a part of your work. May I point out a few methods in which you can help us? First, I should like you to authorize your Secretary to give my office a copy of your membership list, so that I may address myself to the physicians of any locality wherein I may desire their coöperation, and may send you all such publications as may be issued. Second, I should like to have the Secretary's address and membership list of every County Medical Society in the State, for the same reasons. I would further suggest that it is exceedingly desirable that I keep in close touch with the latter, to the end that matters of mutual interest may be promptly attended to.

For the most part the pharmacists of the State will adapt their trade to the law. As you know, physician's prescriptions are exempted from its operations, but proprietaries and patents are not. Wherever you see one of the latter class not bearing upon its label its proper proportion of alcohol or the inhibited drugs, the Inspection would appreciate being informed of the fact, and prompt action will be taken. Improper labeling and extravagant claimes are also an important part of such materials, and all such misbranding will be promptly attended to when brought to our attention. These things are sold within this State as in others, but they must conform to the laws.

I would call your attention to Subsection 6 of Section 3 of the laws, which is as follows: "If it consist in whole," etc.—read it. This clause is intimately connected with the hygienic condition of the stores and shops in which such materials are sold, and will be strictly enforced by the Inspection.

You gentlemen can do a deal of good along these lines by calling the attention of your patients to the importance of such matters, and advising them, so far as possible, to deal only with shops which not only maintain a satisfactory standard for ordinary cleanliness, but cover up their goods from flies and street

dust, and allow no rats on their premises. It is unnecessary for me to call your attention to the dangers from tuberculosis and typhoid and other enteric troubles which lurk in the former, nor to the generally unhygienic character of the presence of the latter. Such rules of hygiene should be applied no less to fruit stalls and grocery stores than to butcher stalls and meat shops.

Unfortunately for the Inspection at this time our funds are very limited, so that our publications will be few for the current year. The State Board of Health has no funds with which it can help us out. In reality, the Food Inspection and the State Board of Health should jointly issue such a bulletin as this of the State of Kansas, with the following table of contents: "Contagious Diseases for December, page 2; Food Analyses, No. VI, page 4; Drug Analyses, No. III, page 8; New Method for Generating Formaldehyde Gas, page 13; Secretary's Report, page 14; National Supervision and Standardization of Food, page 23; Chew Your Food, page 26; That Infernal Oil Heater, page 27; Rules for Tuberculosis Patients, page 28; Inoculation for Suspected Rabies, page 30;" or this of the State of Indiana, which is on the same plan. It is my hope to so conduct this office that not only will there be appropriated to the Inspection sufficient funds to issue the requisite bulletins, but that the State Board of Health may join the Inspection to the end that proper vital and other statistics may be given prompt and appropriate circulation, and that information as to hygiene may be more widely disseminated among our people, and I earnestly hope that all of our citizens who are interested in these very important matters will consent to and work for the legislative appropriation of such additional funds, for as matters now stand not only are both Inspection and Board hampered in their work, but their effectiveness is decreased fifty per cent through lack of means to disseminate its results.

I beg to say that I have taken the liberty of bringing here tonight several hundred copies of the Pure Food Law, I trust that you will each provide himself with one and study it, for it is as much a regulation for public hygiene as a quarantine or anti-spit regulation, and you are in reality as much concerned with it. I also have to suggest that you provide yourselves with a simple book on Food Adulteration, of which there are many. I have one here, as you see, which is by a well-known and competent

author, but who this author is I am not going to tell you, either now or hereafter, for the simple reason that I am not advertising anybody's books. It cost \$1.00, or some such matter, and is ample for the average man at this stage.

Finally, I have to say that as I see the matter, this movement for a better knowledge of food, both as to adulterations and nutritious values, is only just beginning. I hope you will pardon we for calling attention to the great responsibility devolving upon each of us, and especially on you as advisers of your patients, to not only see that we all get a wholesome and unadulterated food supply, but that those foods be so selected from a dietetic standpoint as to be absolutely suitable to each of us, and to provide a maximum of nutrition at a minimum of cost.

DISCUSSION ON THE PAPER OF MR. BROWN.

DR. W. G. FRIERSON, of Shelbyville:

Mr. President—I would like to ask Mr. Brown as to what appropriation he thinks would be necessary in order to carry on the work he has outlined?

DR. T. J. HAPPEL, of Trenton:

I suppose the investigations of this Board will relate to and apply to the products of manufacturers in the State of Tennessee. Of course, the National Board takes cognizance of and controls the interstate commerce of those products manufactured outside of the State. If we find that any of these products manufactured by firms in the State of Tennessee are unreliable, I have no doubt this Board will be glad to get hold of those products and examine them, and if any of them are of doubtful composition, the Board would like to know it. I offer that as a suggestion in the form of a question.

DR. G. M. BURDETTE, of Lenoir City:

I would like to ask Mr. Brown if his department covers the food stuffs of animals?

DR. L. A. YARBROUGH, of Covington:

I would like to ask Mr. Brown if he inspects bakeries throughout small towns when examining soda water plants, etc.?

DR. GEORGE H. PRICE, of Nashville:

I think we are favored in having Mr. Brown with us this evening to make a statement in regard to what has been done in a preparatory way for beginning the serious work of pure food and drug inspection in the State of Tennessee. I am satisfied the members of this Association, if

they knew what it had cost in time and labor and earnest effort to bring about the conditions we have at present in Tennessee, would appreciate these efforts more than they seemingly do, and they would be more than glad to offer every assistance possible to Mr. Brown in his capacity as chemist for the Pure Food and Drug Inspection of Tennessee. But for the fact that the Tennessee State Medical Association was behind this movement, and through its representatives was actively engaged in the efforts to secure this legislation, it would have failed, and I desire to also say in this connection that that part of the work which underlay the possibility of this legislation was due to Mr. Brown and to papers he read before this Society in 1905 in the city of Nashville, at which time he demonstrated conclusively to those present that in some of our ordinary and most common foods we were confronted continuously by serious and objectionable methods of adulteration. The work which has been established, or is just now being established in Tennessee along this line, is largely due to the influence of the medical profession. It is incumbent upon every member of this Association, and those who belong to the Association, and are not present, to give every possible aid in the advancement of this work, and I feel that our thanks are due to Mr. Brown for being here and presenting this matter in such a clear and comprehensive manner.

The plan outlined is one of education, as he says, and not one of coercion, and needs to be carried out by men of discretion, judgment, and tact, for in handling this problem we will be confronted by continuous efforts on the part of those whose business affairs are more or less affected by this legislation, and the pure food and drug inspectors will be continuously confronted by legislation or petty acts, so far as these manufacturers of foods and drugs are concerned, in their efforts to defeat and thwart and to make objectionable this movement to bring about a modification of the legislation concerning this question.

I think Mr. Brown is to be commended for his attitude and for the plan upon which he has projected the work, and I feel satisfied that every member present feels not only an interest in this work, but gratification at the plan projected by him, and I would therefore move that a rising vote of thanks be extended to him.

(This motion was seconded by Dr. Frierson, and carried unanimously.)

DR. W. J. MILLER, of Johnson City:

Inasmuch as there is a lack of appropriation of funds for this work, as implied by the remarks made by Mr. Brown, I think each member of the State Medical Society ought to begin now and continuously use his influence with the representatives in order that they may become big-hearted enough to give the Board a sufficient appropriation to make this pure food law effective. It is a very good law. Tennessee has been a dumping-ground for impure foods for years. We have had on the statute books a good pure food law, but nothing to put it into force with, and if

the members would go to their different representatives when they go back, and use their influence with these men, they are anxious to do generally what the people want, the State Board of Health will undoubtedly have such an appropriation as it desires, in order to carry on this work.

MR. BROWN (closing the discussion) :

Your endorsement or exhibition of confidence in the work that has been projected touches me more than I can tell you. I will endeavor to merit your confidence and to conduct my work in such a way as to meet with your approval. Since you have given me this endorsement, I feel I must lay before you some of the principles of enforcement of the pure food laws, and therefrom you will understand very fully just exactly what we have to contend with. There are three ways of enforcing laws. First of all, you can use the method of notification. If I find A. B. over in North Knoxville is putting up a misbranded product, or is selling meat to which a preservative has been added, or canned product illegally, I can say to him: We know what you are doing. We will give you sixty days to get right, and if you are not ready by the time of the next inspection, we will publish you. Now, the chances are—but that is putting the cart before the horse. Mr. A. B. will get publication, but will get notification, so that he will not need more than one publication. If he does not quit after the second or third offense in violating the law, we will fine him. You will readily understand that this notification operates against Mr. A. B., especially if his name is published in the newspapers, and if this prosecution is brought against him, it hurts him more than a five hundred dollar fine probably ever could.

In the city of Memphis, by efficient inspection, their local Inspection drove one man out of business who had the biggest dairy herd in the County. Notwithstanding the condemnations of the Inspection, he kept on in spite of it, the result being that he is not doing business there any more. He has been driven out, so that with public opinion behind us, the violator of the law stands no chance against the enforcement of a law of this nature.

Replying to Dr. Frierson's question as to the amount of appropriation necessary, I would suggest that we ought to have at least one laboratory assistant, and his services could hardly be had for less than fifteen hundred dollars a year. It is hard to get a good laboratory assistant now, because of the demand for such men in consequence of the agitation which has taken place in regard to these matters in the last two years. We ought to have three inspectors, men who are properly equipped, and the services of these men can hardly be had for less than say thirty-six hundred dollars a year. Then we should have at least fifteen hundred dollars for running expenses. It would be desirable to have two thousand dollars. Not less than seventy-five hundred dollars a year would do to begin on, and it would be distributed in the manner I have suggested. We have twelve hundred dollars now, one hundred dollars per

month, and this one hundred dollars must be expended within any one month. If we overlap any month, we cannot go on the next month. Furthermore, while my firm cheerfully and freely and gladly places its equipment at the disposition of the State, I trust I can be a good enough citizen to say that it is beneath the dignity of the State of Tennessee to borrow a laboratory equipment. It would take three thousand dollars to equip a laboratory even moderately, and five thousand dollars ought to be had.

There are two or three lines in which the State of Tennessee carries on its chemical work. For instance, replying to the questions of Drs. Yarbrough and Burdette, about State cattle foods, that matter is put in the Department of Agriculture, but there is no objection to putting these food stuffs under a central State Laboratory. As a matter of fact, it could very easily be done, and the State of Georgia has established a regular State chemical laboratory in one of the buildings set aside for that purpose.

Regarding Dr. Happel's question, or suggestion, as to State and Interstate matters, as you know, the Federal authorities have allowed the retailer what is called a guarantee.

The retailer does not know, nor can he afford to pay to have the question of purity of the products which he sells investigated by a chemist, especially when those products are not in the original packages. Uncle Sam steps in and says that the retailer may say to his manufacturer, "Mr. Smith, you must guarantee the purity of the goods before I will sell them." To Mr. Jones, retailer, or Mr. anybody else, retailer, who is scattered over a dozen States and a hundred different counties, and whom, therefore, the wholesaler cannot reach, individually, Uncle Sam says: "The wholesaler may file with me a certified guarantee of the purity of these goods. That guarantee will be given a serial number, and on the package you may have the label, 'Guaranteed under the Pure Food and Drug Act, June 30, 1906.' He must carry that serial number on the package." When the retailer sees the serial number and the guarantee, he knows he is protected, and has no fear about buying that class of goods. Bearing on that question is this: That guarantee does not assure, under bond, or in any other way, the purity of the drug. It simply says to the retailer: "We will protect you against prosecution;" therefore, it does not insure the purity of the drugs, and interstate products are quite as likely to be impure as intrastate products. As a matter of fact, they are just as liable to be misbranded, because the Federal authorities have an enormous work in their hands; therefore, it behooves us to help them as much as possible. Moreover, by the provision of the Federal law the State authorities are asked to coöperate with the Federal authorities, and, as a matter of fact, the Federal authorities have taken that matter up and asked the coöperation of the State authorities to the extent of appointing chemists, who may be requested at the convenience of the Federal authorities to make analyses in that State for a certain length of time.

In reply to Dr. Happel, interstate products are just as susceptible to inspection by the State authorities as those made by State manufacturers.

Answering Dr. Yarbrough's question regarding bakeries, I would say that there is no specific provision under the law for their inspection. I believe, however, under the law if unsanitary conditions were found in any bakery, and it could be truthfully said that the products of that bakery are not in accordance with the meaning of the law, we could make things warm for those who own the bakery.

Regarding Dr. Howlett's suggestion, I will say, I would take a great deal of pleasure in going, so far as my time will allow me, and at the expense of the Inspection, to deliver such lectures or talks on pure food as the County Societies might wish me to do. The only thing I would ask of the members of that County Society would be that they make all the necessary arrangements, and notify me as to what particular branch of the subject they required me to speak on mostly; I would then address myself to the particular needs of the hour.

Regarding Dr. Miller's suggestions, I very heartily commend his ideas on the subject.

SECONDARY REPAIR OF COMPLETE PERINEAL LACERATION.

C. E. RISTINE, M. D., KNOXVILLE.

GENTLEMEN—I will place before you in a plain, practical and unembellished manner, the *basic principle* of an operation (probably new to some present) for *secondary repair of complete perineal laceration*. I will not go into the technic farther than is necessary to elucidate the *principle* which I want you to grasp. I direct your attention to a crayon sketch which portrays the condition, and the first step in the operation. We begin by outlining the area we wish to denude, either with the eye, as does the frequent operator, or with ink or other marks. The manner of denudation of this apron or frill of mucous membrane from the vagina is immaterial; usually we begin at the lowest point, the torn ends of the sphincter ani muscle, and proceed upward—for good reason—but you can begin at the lowest caruncle myrtiformes—which should be the highest point of the future perineum—or begin at the apex of the outline; only

this—during your dissection avoid buttonholing the apron, and be sure to go high enough on the posterior vaginal wall to secure an adequate amount of tissue, so that when it is liberated from above and inverted it will reach well below the anus, and out far enough on either side to form a correct perineum, and down far enough to expose the torn ends of the sphincter ani muscle, leaving the apron attached only to the margin of the recto-vaginal rent. In other words, when the flap is freed everywhere except at the point mentioned, it is as it were hinged at the recto-vaginal tear, and when this apron or flap is inverted it transforms the rectum into a seamless tube. I hope you catch the principle. You will at once recognize the great advantage this operation has over the old, in converting a complete into an incomplete laceration, and that, without a stitch or suture. Now, when you have this tongue or apron inverted into the rectum, you have an unbroken raw perineo-vaginal surface to be brought together just as you would in a simple or incomplete perineorraphy, except the stitches which approximate the ends of the sphincter muscle. I do this by first inserting a catgut suture through the muscle near its freshened ends, and a second suture of silkworm-gut to reinforce the first, which is passed through the skin, sheath and muscle; it also catches just enough of the inverted apron to prevent its retraction; this stitch is tied first, it brings the ends of the sphincter muscle in close relation so that when the first suture (catgut) is tied the ends of the muscle are brought into exact apposition. The placing of the other sutures in the perineum and vagina may be varied to conform to the idea of the operator. After all sutures are placed and tied the temptation is very strong to clip off the redundancy of flap protruding from the rectum—let this alone, as much if not all of it will have disappeared by the time union of the parts have occurred, and if a teat remains it can be snipped off with scissors under a local anesthetic.

While there are many technical details intentionally omitted, I hope I have made clear the fundamental principle.

According to this method I did the first operation February 29, 1897, and on the 11th of May, 1897, I read a paper before the Knox County Medical Society describing the procedure. Later I prepared an article for publication, which appeared in the

American Journal of Obstetrics and Diseases of Women, March, 1900, entitled, "*A New Method of Operating for Complete Tear of the Female Perineum.*" Again, on October 29, 1903, I read another paper before the Knox County Medical Society entitled "*An Original Operation for Complete Laceration of the Female Perineum,*" which was published in *American Medicine*, issue March 5, 1904. And at the annual meeting of the EAST TENNESSEE MEDICAL SOCIETY, held at Bristol, Tenn., October, 1905, I contributed a paper on "*Operation for Repair of Complete Laceration of the Perineum.*" This paper appeared in the *American Practitioner and News*, issue April 1, 1907.

No small degree of pride prompts me to mention a few of the many surgeons and gynecologists—some of them you must know—who have endorsed and adopted this method of operating.

First, I will mention my fellow-townsman, Dr. B. B. Cates, who can speak for himself; Dr. Howard A. Kelly, of Johns Hopkins; the late Dr. Wm. A. Pryor, of New York; Dr. Louis J. Ladinski, of New York; Dr. Geo. Ben Johnson, of Richmond, Va. Prof. E. E. Montgomery, of Jefferson Medical College, in his second edition of *Practical Gynecology*, published in 1903, presents two of my illustrations and gives a short description of the procedure, also the same appears in his third edition, 1907, page 320. Dr. David Todd Gilliam, Emeritus Professor of Gynecology Starling Medical College, Cleveland, Ohio, in his second edition of *Gilliam's Gynecology*, 1907, on page 134, gives a very good description of the operation, and on the opposite page presents two half-tone plates illustrating the same. Dr. Eustice McDonald, of New York, writes me: "I have used Dr. Ristine's operation after becoming familiar with it at the time Dr. Kelly granted Dr. Ristine priority in the matter. Dr. Ristine is to be congratulated upon devising so useful a procedure." Dr. John C. DaCosta, Philadelphia, had supposed the operation was a modification of Tait's, and says: "I am glad to learn the idea was that of an American surgeon." In the November, 1905, issue of the *Journal of Obstetrics and Gynecology of the British Empire*, published in London, there appeared an article by Dr. Charles G. Child, Jr. (Yale), on "*Secondary Repair of Complete Perineal Laceration.*" He begins by criticising an article upon the same subject which appeared in the July issue of the above

journal by Dr. Cullingsworth. Dr. Child says: "In this article of Dr. Cullingsworth, reference is made to the operative procedures of Emmet, Hegar, Tait and Kelly, but no mention is made of the classical operation for complete tear devised over ten years ago by Ristine, of Tennessee, and used extensively in the United States ever since. Because his operation, which is one of the cleverest and most satisfactory in plastic surgery, seems to be comparatively unknown in the British Empire, I beg leave to herewith present it." After a description of the technic, he says: "In conclusion, I wish to again take the opportunity of thanking Dr. Ristine for the benefit derived by my patients through his brilliant achievement, not one of whom has failed to secure primary union and complete control of her sphincteric muscle from the time she came out from under the anesthetic."

In the *Journal of the American Medical Association*, issue of June 6, 1907, pages 1181, 1182, there appears an article from the pen of one of New York's most noted surgeons, Dr. Robert H. M. Dawbarn, entitled "*Complete Restoration of Torn Sphincter-anal Muscle After Twenty-three Years of Atrophy and Disuse.*" He says: "The accusation is sometimes made that surgeons who have had the good luck to score an exceptional success are apt to rush into print and report it to the profession without waiting a reasonable time in which to ascertain whether or not the cure can properly be classed as a permanent one; however, I think we may consider the following patient definitely and permanently cured, whose case—possibly unique in point of time between her sphincteric loss and restoration—I now report for the first time, six years after the operation. The patient states that she can now control, even during an occasional diarrhea, her bowel movements as perfectly as ever before the tear." After giving a history of the case and extent of the tear, which "reached half way up the rear wall of the vagina and to the same level of the front wall of the rectum," he says: "I operated upon this woman on November 27, 1900, assisted by Drs. Charlton Wallace and J. W. D. Maury; her family physician, Dr. Stewart Close, being present. The technic employed was one which in its simplicity and application seems hard to improve on. It was devised by Dr. Ristine, of Knoxville, Tennessee, more than twelve years ago, and its technic was published by him some years afterward

in the *American Journal of Obstetrics and Diseases of Women.*" In concluding this article he says: "It will be found that in a few particulars my operation differs from that of Dr. Ristine. The principle, however, is his, as also should be the entire credit of this—one of the very few operations which seem to me perfect in technic."

And now, gentlemen, what would be a logical conclusion? *The adaptation of the principle in this operation is so convincing that criticism admits of only favorable comment; its beauty and attractiveness consists in its simplicity.*

DISCUSSION ON THE PAPER OF DR. RISTINE.

DR. W. D. HAGGARD, of Nashville:

Mr. President—I wish to congratulate Dr. Ristine upon the clear exposition of the operation—especially the principle of the operation—as it is one that has been very useful in the hands of every one who has tried it. I remember distinctly that in 1897 Dr. Howard Kelly proposed the restoration of the sphincter muscle itself at the Memphis meeting of the Southern Surgical and Gynecological Association, but afterwards, I was happy to note, gave priority to Dr. Ristine for originating the operation of separate suture of the sphincter ends themselves.

I may say, also, that Dr. Noble, of Atlanta, a most ingenious plastic surgeon, has utilized the same principle. The principle is Dr. Ristine's. Noble simply draws down the entire wall of the rectum, instead of the flap, to the vagina, having separated it from the vagina, and closes the sphincter above it as in incomplete tear of the perineum. It is simply a different way of doing it. I have followed that plan latterly with most pleasing results. It is an operation of very great simplicity, in that we do away with contamination from the rectum, and Dr. Ristine's idea of making an apron or flap, and thus effectually shut out rectal contamination, makes the operation for complete tear a simple and satisfactory procedure. Any man who has ever had much experience with repairing the sphincter in complete tears knows it is one of the most difficult and complicated operations in surgery to get complete, satisfactory union. It is a matter I have been personally greatly interested in, because I chanced to be on the service of Dr. Emmett, in the Woman's Hospital, of New York, who was pre-eminently fitted to do and to instruct in plastic work; but, I am free to say, the operation that has been devised by Dr. Ristine is perfect in its scope and concept and most beautiful in its application. I think the profession of Tennessee ought to feel complimented that an operation of this magnitude

emanated from its borders. The City of Knoxville ought to be proud of this achievement, and I am pleased to state that Dr. Ristine did his early work in the City of Nashville.

DR. RISTINE (closing the discussion) :

I am not surprised at the little discussion that has been given to my paper, as there is very little to discuss. The principle to which Dr. Haggard has called your attention is the difficulty with which we united the sphincter muscle. If you can get good union of the sphincter ani muscle you will have succeeded in your operation without doubt. Is not that so, Dr. Haggard?

DR. HAGGARD :

Yes, sir.

DR. RISTINE :

The purpose of using the two sutures, as suggested by me, is to let one of them take the strain off; draw them closely together, and the catgut suture will bring them into exact apposition, and you are more apt to get correct union than otherwise.

DISEASES OF THE FRONTAL SINUS AND THEIR SURGICAL TREATMENT.

C. M. CAPPS, M. D., KNOXVILLE.

IN taking up the pathology of the frontal sinuses it will be well to bear in mind their close relations to important structures that so closely surround them, structures that make disease of this sinus of more importance than any of the sinuses of the face; yet in the medical literature of the sinuses of the face, the frontal sinus bears the smallest share; in fact, it does not seem to have received the importance it deserves. Thus, Bosworth says that "Superative inflammation of this sinus is of the rarest occurrence." And Zuckerkandl states that he has never met with a single instance of uncomplicated disease of this sinus; yet their statements do not bear out my own observation by any means. A frontal sinusitis is not always easy of diagnosis; in fact, the symptoms may be misleading and obscure. If the

attack is acute there should be no great difficulty in locating the trouble. The patient will then give a history of coryza and the symptoms of a cold will be present, with pain over the sight of the sinus more or less intense, starting from the region of the orbit on the side affected, and sometimes extending back even to the occipital region. Pain may be deep-seated or neuralgic in character, with swelling of the upper eyelid and tenderness on pressure over the superior and inner angle of the orbit. Palpation over the region of the sinus elicits pain out of proportion to amount of force used. Early in this stage, often there is no pus in the sinus, but only congestion of mucous membrane lining it. Later on the sinus is filled with mucous, and in the chronic stage filled with pus, and may be discharging continually. The incandescent light is useful in making a diagnosis, also the X-rays, but the shadow cast should not be relied upon exclusive to all other indications.

The indications for treatment are purely surgical. Of course there are palliative methods used; and, indeed, this seems to be as far as some specialists are inclined to go, and leave the patient to a natural termination of the case. That is, let the pus break into the nasal canal (which is the most probable course), or into the orbit, or, least probable, into the cerebral cavity. There are a great many operations done and advised by different authors; the two leading divisions of these operations are the external operation and the internal operation. In my opinion, the external operation is much to be preferred, and is done as follows:

The eyebrow on the affected side is shaved off and washed with green soap, and then a 1 to 5000 bichloride dressing is put on and left on at least two hours before the operation; at the time of operation the brow is again scrubbed with green soap and alcohol, and the patient anaesthetised.

The incision should commence well down at the base of the sinus, extending upward and backward over the superciliary ridge for at least one and one-half inches. The periosteum is dissected up and the bone exposed over a large space. The opening is then made near the base of the sinus with a chisel and rounger, and as soon as the sinus is exposed, the chisel should be dispensed with, and a bone curet substituted, and the opening made larger; as soon as the cavity is thoroughly reached a flexible probe should

be used to explore the sinus and determine the existence and extent of necrosis. The opening should not be large, for the success of the operation does not depend on the size of the opening, but on our ability to remove all pus and necrosed bone. A small, sharp curet with a flexible handle should be used, so as to enable the operator to reach every angle of the sinus. The sinus should then be washed out with peroxide of hydrogen; then with the bichloride solution of 1 to 5000. And if there is no opening into the nose, one should be made, and a drainage tube inserted and left in place, but if the operation has been thorough, the drainage through the tube will be small. The sinus should be packed with iodoform gauze, saturated with the peroxide of hydrogen to absorb any pus that may be left. The outer portion of the opening in the soft parts should be brought together with fine sutures to prevent deformity; a bandage is then put on and left in place for some time, say from one to five days, according to indications.

When operation is done in this manner, there is no deformity to speak of, not enough to mar the visage of the most beautiful countenance.

DISCUSSION ON THE PAPER OF DR. CAPPS.

DR. G. E. VAUGHAN, of Clarksville:

Mr. President—The most important point about frontal sinus trouble in the acute cases is the diagnosis. It is confounded frequently with neuralgia and with inflammation of the eye in some instances. I remember seeing one case in which it took me a considerable time before I could make a diagnosis of acute frontal sinus disease. The diagnosis is easy when you have involvement of the middle turbinate and other adjacent areas.

I do not agree with the essayist with regard to the operative treatment of acute frontal sinusitis. It has been my observation and teaching that in acute infection we are liable to get up a meningitis by operation. That acute frontal sinusitis will nearly always subside on the application of hot water externally and adrenalin in the nose. Then the necessary operation can be done afterwards. However, if symptoms of meningitis supervene, it is necessary to go in and do a radical operation at any time.

In treating chronic cases, where we have a nasal discharge, I think it is conservative surgery to give the patient the benefit of an intranasal operation, removing the middle turbinate and enlarging the nasofrontal

duct, giving the sinus a chance to drain, and the majority of these cases will clear up and the patients will be comfortable. With occasional douching out of the nose they will get along with that condition very well, whereas a radical frontal sinns operation is one of considerable importance and not without danger.

I think the essayist's method of packing the frontal sinus was hardly in accord with the established teaching. We should adopt the method of allowing the tissues to fill in space and also blood clot formation, the same as is done in radical mastoid operation.

DR. M. M. CULLOM, of Nashville:

The essayist spoke of frontal sinus disease as being one of the rarest conditions which we meet. It has not been my experience that it is a rare condition in the acute form. In connection with the grip, we have many cases of frontal sinusitis. It has been very prevalent during an epidemic of influenza which we have had. I do not believe in operating on acute cases. Everything ought to be done before subjecting a patient to a radical operation. When we find one of these acute cases in which we use adrenalin to contract the tissues, and give the patient adrenalin to use in the form of a spray, and also a cleansing spray, nearly all of these cases will get well and not come to an operation. Even if the discharge becomes chronic and persists, we ought to make every effort to establish drainage through the nose before resorting to an external operation. An external operation is serious, and deformity is a thing to be thought of. I heard Gustave Killian, who has done more radical operations on cases of frontal sinusitis (chronic) than any other man, say that it is an operation not to be undertaken until all other possible measures have been tried. Every possible effort should be made to treat the patient successfully before subjecting him to an operation. He advises very strongly against operation in acute cases, and insists that a month or two should elapse before anything in the shape of an operation is undertaken. As Dr. Vaughan has remarked, we should make every effort to establish drainage through the nose by the removal of the middle turbinate, clearing away all obstruction to drainage from the sinus before resorting to a radical operation. If the patient is threatened with meningeal complications, and life is endangered by a chronic frontal sinusitis, the only thing to do is to resort to a radical operation.

DR. HILLIARD WOOD, of Nashville:

The facts that are true of empyema of the frontal sinus are true of the accessory sinuses of the nose in general, and what is true of one is true of all.

In considering the subject of empyema of any of these sinuses, we have, first, to divide them into the acute and chronic; and what is true of one is not true of another, as regards treatment. The treatment will depend very largely upon whether the case is acute or

chronic. It has been stated here by Dr. Vaughan, and emphasized by Dr. Cullom, that the treatment of acute frontal sinusitis is what we may call conservative. It is not a radical operation. It is the preliminary removal of the anterior end of the middle turbinate with such other pathology as may be found, such as polypi, and irrigation of the frontal sinus through the nose, which is not a difficult matter. After we have removed a part of the middle turbinate, irrigation will oftentimes cure the acute inflammation of any of these sinuses. Let us take the antrum, for instance. During the past season I have cured several of them by irrigation. I mean acute cases of empyema, so that it is merely a question of drainage. But in chronic cases of empyema we have a different condition. The mucous lining of the sinus becomes converted into practically what we were taught was a pyogenic membrane, and it will go on secreting pus *ad infinitum*. If a chronic case cannot be cured by drainage and irrigation and removal of the middle turbinate, then radical operation, as described by Dr. Capps, is the only correct surgical procedure.

One point I desire to call attention to is the prevention of deformity. This is an important matter with most patients. I have operated on these cases, and have had deformities, and I know how one feels when the wound heals and he finds a large cavity. The secret of preventing deformity consists of two points, and one is not to remove the supra-orbital arch, and Dr. Capps specified that point. And the other point is to make as small an opening as you can and get union by first intention. That is eminently true, as I happen to know from having failed to get a cosmetic result in some of my cases in the past.

DR. G. E. VAUGHAN, of Clarksville:

Dr. Wood has just called our attention to the importance of making a small opening in order to avoid deformity. Any one who has seen Killian operate would not see a small opening, because he takes off the front wall and takes out the anterior end of the middle turbinate and exposes the ethmoid completely. His idea in preventing deformity is to bevel off the front wall of the frontal bone.

These operations are rare in this section of the country, because we cannot get hold of them. I have only had one case upon which I operated, and in that I got some deformity. I think deformity is the rule. The idea of making a small opening, however, is not a good one.

DR. CAPPS (closing the discussion) :

The subject of my paper was purely surgical. I was not talking of treating these cases with adrehalin sprays, as that line of treatment was not considered in the paper. There is nothing that will cure marked cases of frontal sinus disease except a radical operation—that is, to remove dead bone, and stop suppuration. Reference was made to the Killian operation. This was not discussed in my paper, and while the Killian operation may be suitable for the complication of

sinusitis and ethmoiditis, it has nothing whatever to do with frontal sinus disease.

The operation seems to be criticized on the ground that the opening is not large enough. I have made this operation through a small opening successfully, removing a portion of bone not larger than a dime. But you want the opening large enough to admit any flexible sharp probe or curet with which to scrape thoroughly the inside of the sinus. That is all the opening you need. But you do not need a large opening for this purpose. The smaller the opening, the less the deformity. Deformity should be considered in treating these cases. With a small opening there is not likely to be any deformity. Of course, if you have the complication of ethmoiditis, you must make a larger opening. You must take a portion of the orbital bone, go in deeper, take away more bony tissue, but I am speaking now of uncomplicated frontal sinus disease. In those cases where we have a discharge of pus, with necrosis of bone, or suppuration of the mucous membrane, there is nothing that will cure them except a radical operation, and, as a rule, the results are satisfactory. In the acute form you may use adrenalin sprays, but a great many of these cases get well without operation. But speaking of the chronic form of sinusitis, there is nothing that relieves or benefits or cures it except a radical operation.

MOVABLE KIDNEY.

WM. D. SUMPTER, M. D., NASHVILLE.

THE frequency of movable kidney has long been recognized and variously estimated by different observers as occurring in 20 to 50 per cent in women, and 6 per cent in men. Danheux found 35 per cent of 603 women examined so affected. Eighty-five per cent of all cases occur in women. Its occurrence in the right kidney is fifteen times as great as in the left, and this fact directs our attention largely to that side of the body. Notwithstanding the volume of statistics to establish the occurrence of displacement of the kidney, records are very meagre as to the symptoms produced in these cases, save Küster's report that the percentage of pathological movable kidney is 4.41. Whatever the true pathological frequency may be, vague abdominal pain demands careful attention to this organ as a possible cause.

The normal kidney moves to a certain extent with each respiration, and a slight exaggeration of this condition may but seldom produce disturbing symptoms. The natural mobility of the kidney is one to one and one-half inches, and even when lower and palpable it may be physiologically normal. Displacement of the right kidney to or below the umbilicus usually produces not only a pathologic kidney, but may act as a causative factor in disturbances of the gastro-intestinal tract, chiefly the stomach, duodenum, and appendix, also in diseases of the biliary passages. The frequent coexistence of these complications clearly proved by *post-mortem* examinations and upon the operating table, is explained as due to pressure of the displaced organ, sympathetic reflexes, or more probably to traction on the peritoneum, reflected upon the liver, hepatic flexure of the colon, the stomach and duodenum. Pressure on the superior mesenteric vein is supposed to be the etiological factor by the production of venous congestion and consequent greater liability to inflammation. Be the causative element what it may, Riddel found gall stones, cholecystitis, etc., and appendicitis not infrequent with movable kidney, and more earnest search by others would no doubt be likewise corroborative of his experience. Edebohls reports four consecutive cases of right movable kidney, two of which were complicated with gall stones, one cholecystitis and one pericholecystitis.

The diagnosis of movable kidney is more certainly determined on physical examination by palpation. The kidneys normally lie above a horizontal line through the umbilicus, the left one and one-half inches, and the right one inch. A perpendicular line from the middle of Poupart's ligament has one-third of the kidney to its outer side, two-thirds to its inner. The kidneys are closer to the vertebral column than usually remembered in palpation, being only an inch from the vertebral spines. The twelfth rib practically divides the kidneys into halves.

Palpation, often unsatisfactory to the inexperienced, becomes a matter of easier determination with continued practice. One examination is not always sufficient, and if symptoms demand, several should be made.

The position of the patient may be dorsal, lateral, half-sitting, and standing. The erect position, with weight of body sustained on hands resting on a table or body supported by an assistant,

often I have found reveals a displacement when all other postures fail, as the kidney may slip back into its normal position in any of the other positions. Flexion of the body, the hips, and the knees, contribute to greater relaxation in all of the positions. The patient should take one or two full breaths before palpation is begun, that the kidney if movable may be displaced. The left hand is pressed over the lumbar area of the kidney, the right below the ribs and just external to the rectus muscle. Let the patient breathe quietly with no effort to assist in the examination. Be as gentle and easy as possible, exercising rhythmic pressure instead of force. The usual instruction to examine the kidney during deep inspiration, it is true causes the organ to descend, but the abdominal muscles cannot relax during a deep breath, and their contraction obscures any descent that the kidney may make. Anæsthesia is seldom indicated, but may be called for when examination is unsatisfactory and case demands it. Long-chested, narrow-waisted, slender women are almost exclusively the subjects of movable kidney. The symptoms which should call for bimanual examination of the kidneys vary according to the severity and character of displacement. Pain referred to the loin, groin, epigastric or umbilical region may be present. It may be only annoying, but may assume paroxysmal types, the severity of which was sufficient, at no more remote a date than 1879 to occasion nephrectomy for its relief. Usually firm pressure over the affected kidney produces pain, faintness, nausea or even vomiting, which symptoms are valuable for diagnosis. Constipation and menstruation increase the pain experienced. The severest types of colicky pain are attributable to bending or twisting or constriction of the ureter, causing renal and uretral retention of urine. The urinary disturbances may be slight and hardly noticed, or markedly distressing.

Gastro-intestinal disturbances, such as nervous dyspepsia, nausea and vomiting, associated with constipation, or perhaps mucous enteritis, are often so pronounced without the pain symptoms that the kidney as a possible cause is entirely overlooked.

Hepatic disturbances, even clear gall-stone symptoms, with marked jaundice, may be present, due entirely to traction of displaced kidney. Nervous symptoms manifested in muscular weakness, ornalaise, palpitation, insomnia, depression, even to melan-

cholia in some degree, will usually be present in pathological movable kidney.

It must be remembered that even in full displacement of the viscus, no symptoms whatever may be present.

The language of the abdomen, so plain when we find just what we diagnosed, is far from clear when obscure pain or complications mask what would probably be otherwise simplicity itself—and many of the best diagnosticians in frankness becoming all true greatness admit their mistaken diagnoses in pathological movable kidney. Differential diagnosis in surgical diseases of the abdomen should always embrace the determination of the presence or absence of movable kidney. After renal colic symptoms, an examination may reveal the condition under discussion. Digestive and biliary disorders should not so engross the mind that their possible causation is disregarded. Before appendectomy it is wise to eliminate any possible complications from renal origin. Pelvic examination and removal of ovary and tube may not yield results until the kidney is restored to its normal condition. In differential diagnosis fecal impactions, intestinal obstruction, cysts of the mesentery and tumors of various origins, as well as pathological uterine appendages, may all simulate the displaced kidney.

Palliative treatment consists in relieving the twist or kink in the ureter by recumbent position in bed with or without manipulation of the organ in attempts to replace it. Prolonged rest in bed, forced feeding to deposit fat around kidney, and future avoidance of strain, jars or overwork has cured many simple cases. The use of abdominal bands or supporters in relaxed abdomens will contribute to relief or cure. The advantage of kidney pads is fallacious, and is to be condemned, for pressure firm enough to press the abdominal muscles in a dimple under the kidney would be unbearable. When the laughter, sneezing, coughing occurs the rigidity of the muscles will lift the compression unless an apparatus such as the obsolete tourniquet were used and the kidney sinks under the compression or may be even pushed down further by it.

Indications for operation depend entirely upon the symptoms demanding it and not the displacement. Even when the upper pole of the kidney is below the ribs, if there is no bending or twisting of the ureter nor severe traction, the organ may be

physiologically normal. Accidental discovery of a displaced kidney does not demand operation until it is pathologically indicated.

Oblique lumbar incision is to be preferred, and the transperitoneal route is seldom necessary—except in floating kidney with a short nephron. The ribs should always be counted, that the upper end of the incision may not accidentally be carried into the pleura. Severing the ilio-hypogastric and ilio-inguinal nerves should be avoided if possible, and if necessarily divided, should be sutured. Through the lumbar incision, the peritoneum may be opened external to the colon and the appendix removed, as done by Edebohls in fifty-six cases, with only four failures.

He also has removed gall-stones and drained gall bladder through same opening with success.

In persons of low stature the space between the twelfth rib and the iliac crest is often but little more than an inch. Though resection is often practiced, a more oblique incision will suffice. Edebohls writes, viz.:

“Personally I have been able in all my nephropexies and other operations upon the kidneys to overcome the difficulties connected with great proximity of the twelfth rib and ilium or with a long and oblique twelfth rib, by a very simple device. This consists in nicking the outer margin of the quadratus lumbarum at or very near its insertion into the crest of the ilium—to a greater or less degree according to the demands of the situation, an expedient which I have availed myself of some two or three dozen times. I have never found it necessary to extend the lumbar incision downward and forward upon the abdomen, or make a trap-door approach to the kidney by two incisions at right angles to the first incision, one at the upper and one at the lower end of the latter, a procedure I have now and then seen practiced by this or that surgeon upon the slightest provocation.”

The many methods of fixation of the kidney by tamponade, suture through the cortex, muscle sutured into kidney substance and transplantation of the organ into the muscles or fascia, etc., are used, but Edebohls' method of decortication and suture of the capsule to muscles is so satisfactory and practical that it seems to meet all indications.

The anatomic results depend on the thoroughness of fixation by new fibrous tissue, rest in bed for at least three weeks. Recur-

rence of the disorder is largely due to the methods of insufficient fixation and has been productive of disfavor which should, with thorough technique, never have occurred.

The therapeutic results are to be measured by the relief of symptoms—which can only be accomplished by sound anchorage, little damage to cortical substance, and removal of conditions which complicate the kidney displacement. Cases of diagnosed gastro-intestinal disturbances, even to correction of constipation, have yielded complete relief after nephropexy. So biliary and uterine appendage symptoms have likewise been removed, and many are the cases reported with gratification after this operation, which in my experience I can truly corroborate.

DISCUSSION ON THE PAPER OF DR. SUMPTER.

DR. S. R. MILLER, of Knoxville:

Mr. President—Dr. Sumpter has covered the subject so thoroughly that there is but little to add. I can only emphasize some of the points he brought out. He did not go extensively into the technic of the operation, but I presume he meant the Edebohls' method when he spoke of bringing up a pad of fat that can be placed beneath the kidney to give it support. I feel better about the result where I can find a pad of fat with more or less tissue in it that can be sutured, so as to hold the kidney in position.

I was glad to have the doctor locate the position of the kidney so perfectly for us, and my observation has been that a large majority of physicians, to say nothing of laymen, locate the kidney much lower than it really is. Those who open the abdomen quite frequently and have to deal with the kidney surgically have learned where the kidney is, but the majority of physicians locate the kidneys at or below the umbilical line. A great many people complain of their kidneys below where they really are.

The doctor, in speaking of examination and of the flexed position of the patient, did not refer to the leaning position. I almost always have my patient, especially if I cannot find the kidney displaced otherwise, lean forward over the back of a chair or on the table in this manner (illustrating), or at the foot of a bed, and when the abdominal muscles are completely relaxed, we will get a displaced kidney by the respirations in that way. Oftentimes we cannot get a displaced kidney with the patient lying in bed waiting for the doctor, and always afraid she is going to be hurt.

I think the doctor has been quite conservative in the treatment of these cases, and I do not believe that the surgeon who is doing a considerable amount of work is operating on these cases so frequently

as formerly. I believe that many of the symptoms attributed to the kidney are due to some of the complications which the essayist mentioned.

I was also glad to hear him emphasize the palliative treatment and to condemn the belt or pad, but I do think many of these cases can be treated in a palliative way by building up the patients and replacing the fat and tissue that have disappeared from around the kidney.

You noticed that in giving his statistics and the class of cases in which this condition occurs, they are almost always young women, and in a very large majority of cases they are young, lean women of neurotic tendency, and if we can build them up—and it is difficult to build up that type of patient—oftentimes we will give relief, just as well as if we carried out a most difficult surgical procedure in connection with the kidney. I believe that some of the good results we get following our operations are due as much to keeping these patients in bed and on proper diet and in building them up as to the operations themselves.

DR. M. C. McGANNON, of Nashville:

I think this is one of the fairest expositions of this subject that I have heard for a long time. Owing to the short space of time the essayist was permitted in which to present the subject, he has not dealt with it, probably, as fully and extensively as he otherwise would have done, yet he has covered the ground so thoroughly and so fairly, from all standpoints, that the usual criticisms made by internists upon papers of this kind will find but small footing. You will observe that Senn is quoted as stating that all movable kidneys, which are encountered during physical examinations—and we encounter a great many of them—are not responsible for the symptoms for which patients consult us. But, on the other hand, he has pointed out very forcibly that oftentimes patients come to us with symptoms of this or that trouble who are not relieved by any line of treatment, whether medical, mechanical, or even surgical, but are relieved after the kidney has been replaced and properly held in its normal situation. I am prompted to refer to this diagram on the wall in order to better illustrate the natural position of the kidney, as it may serve to explain why some of these symptoms must of necessity arise from displacement of the organ.

You will observe from this diagram that the kidney is situated a short distance, as has been very well described by the essayist, from the spinal column; that the ureter runs a more or less tortuous course until it reaches the bladder. This ureter is held somewhat in a fixed position by connective tissue; the blood vessels of the kidneys are also held to some extent in a fixed position by connective tissue, so that any descent of the kidney must of necessity interfere not only with its blood supply, but also with the channel that permits of the escape of urine down into the bladder. The result must be symptoms not always referred directly to the organ that is here affected, but perchance to some other part of the body.

Some of the consequences of this condition are to be found in infections. This the doctor did not lay stress on.

It has been shown by experiments on dogs that if you injure a kidney, and, at the same time, introduce into the body some infective media, in a short time an abscess will be produced in the injured kidney, while in a control dog, into which the same infective media has been introduced, and in the same situation, in which the kidney has not been injured, the abscess will not form in that organ.

Observations have shown that infective processes are much more liable to occur in movable kidneys than in those that are not movable, and probably some of the cases of tubercular kidney with which we have to deal can be explained upon this same ground. The interference with the escape of urine from the kidney to the bladder leaves the soil more suitable, the kidney more vulnerable, and if there be a tuberculous focus in the body, the blood supply carries the infective material to the already damaged kidney, infection follows, and a tuberculous kidney results. The same thing holds good for other forms of infection and serves to explain why a kidney becomes damaged when other parts of the body escape the results of infection, no matter where the original focus may be.

The doctor has pointed out very well, and it is unnecessary for me to amplify it further, the effect upon the general health. Many of the cases of gastrointestinal troubles, diagnosed as malaria or simple biliousness, associated with constipation, may be wholly cured by placing the kidney in such a position that it will properly drain, that there may be no damming back of the secretions, no resorption, no uremic poisoning as the result of interference with the outflow.

DR. W. J. MILLER, of Johnson City:

I am very glad to hear a surgeon express so much conservatism with regard to the treatment of floating kidney. I believe a surgeon is always right, when he cannot diagnose anything else in a patient but a floating kidney, to let it alone until he can find some pathological condition in the kidney. The fact that a kidney is a movable body, and he finds it floating, does not require an operation. I have seen a good many cases of anchored kidneys, and remember a good many that were not anchored, and, as a rule, those patients who have not had their kidneys fastened have been better off than the ones that had.

DR. JERE L. CROOK, of Jackson:

Dr. Barbat, of San Francisco, has done fine work, in my judgment, in calling the attention of the profession to cases of enteroptosis, and devising for that condition a special type of corset. I have had the pleasure of talking with him. He is a very fine surgeon, and does a great deal of operative work on the Pacific Coast. He is very strongly opposed to operating for floating kidney. He has come to the conclusion that operation is only indicated in rare instances, but he has found in his practice a great many women suffering with enteropto-

sis, and I think we will all agree with the doctor that this condition is responsible for many of the ills to which woman is heir, and in the relaxed condition of the abdominal muscles we find the kidney moves as freely as, or more so, than any of the abdominal organs. As it moves from its position, the contents of the abdominal cavity sag forward, and we have at once digestive disturbances, fecal impactions, etc. We cannot control this absolutely by abdominal supporters, and while I have prescribed many of them, and have secured a great deal of relief, in many instances, yet in my judgment we should have a form of corset that will do the reverse of what the ordinary corset does; that, of course squeezes and pushes down the organs; but the form of corset advised by Barbat will reverse the condition and hold in position the various abdominal organs by giving proper support to the relaxed muscles. If we can get something that will hold up the abdomen and support the relaxed muscles, we will have secured amelioration of the various symptoms which afflict women.

One other point which, I believe, the essayist did not bring out is that in a great many of these obscure cases we are unable to make a positive diagnosis. In many of these we are able to locate the sigmoid flexure below its usual position, and it has been demonstrated that as a consequence we have fecal impaction, which is responsible for many of the symptoms of which women complain. I have had three cases that have consulted physicians in various parts of the country, and various diagnoses have been made. In these I have found a doughy, sausage-shaped tumor, which yielded to the use of a rectal tube at the hands of the nurse, and a dose of some simple medicine to cause the bowel to contract and empty itself.

DR. W. G. FRIERSON, of Shelbyville:

I would like to ask the essayist if he is able to palpate the kidney in its normal position? Also, what per cent of operations have been successful, so far as amelioration of the symptoms are concerned? I refer to psychological as well as any other symptoms that may arise.

DR. A. B. COOKE, of Nashville:

I did not hear all of the paper, but there were a few remarks the essayist made before I left the hall that I wish to call attention to. He says that movable kidney is practically limited to slender, narrow-waisted women. Of course, that is a broad general rule, but I have had a few of these cases come under my observation which have led me to believe that it is by no means an invariable rule. I have seen the condition in a number of women who were rather large. True, the majority of cases, except one notable instance which I shall relate, were multiparous women with general ptosis of the abdominal viscera. When it occurs in an unmarried woman, with a long, narrow waist, who has a paucity of adipose tissue for kidney support, it usually occurs on the right side alone. The essayist did not refer to the fact that traumatism may be an etiological factor to be reckoned with in the production of this trouble.

I had a case come under my observation a number of years ago in a young woman, eighteen years of age, of magnificent physical development, who had never been previously sick a day in her life, who was shopping in one of the department stores in Nashville. She was riding in an elevator, and when the elevator reached the third floor it gave way suddenly, and she was precipitated with considerable violence to the asphalt cellar floor. The result was the young woman developed symptoms, and upon careful examination this condition of affairs was found: Occurring in an unmarried woman one might suspect movable kidney if the symptoms were referable to the right side. In this case there was a left movable kidney, with the right one in position. The left kidney was anchored. The symptoms were relieved for a period of eighteen months, when she began to have some of Dietel's crises, gastro-intestinal disturbances, etc., and re-examination disclosed the fact that while the left kidney remained in position, the right kidney had now become displaced and descended to the brim of the pelvis, almost. This, too, was anchored, and a happy recovery made, and the young woman for the last few years has been free of symptoms.

I cite this case to show that traumatism, in spite of authorities to the contrary, is a positive etiological factor in the production of this trouble.

I was glad that mucous colitis was referred to as one of the symptoms of movable kidney. Having had a great deal to do with pathological conditions of the alimentary canal, I have seen mucous colitis produced so often in this way that it has now become a matter of routine with me to institute a thorough abdominal examination in all of these cases, whether there be rectal, involving the lower bowel, or sigmoidal trouble sufficient to account for the symptoms or not. In a number of cases I have found the entire trouble, so-called mucous or muco-membranous colitis, to be caused entirely by the movable kidney, and usually a right movable kidney.

Dr. S. R. Miller made a statement to which I desire to take exception, namely, that this pathology usually occurs in neurotic women. We should not allow ourselves to be misled on that point. I grant you, the two are usually associated, but instead of the movable kidney occurring because the woman is neurotic, she becomes neurotic because she has movable kidney in nine cases out of ten in my experience. While the two are associated, do not let us lose sight of the causative relation between the two and get the cart before the horse.

Dr. Miller, of Johnson City, said when nothing which accounts for the symptoms or suffering can be found, except movable kidney, we should let it alone. I think that is the very reverse of the proper teaching. After you have explored and carefully examined conditions and cannot find any other pathology to account for the symptoms, except movable kidney, then by all means give the woman the benefit of the doubt; let us believe that it is due to the movable kidney which may be the symptom-producing condition, and give her the benefit of opera-

tion, which is not a dangerous procedure. While it is an operation of magnitude, it is not particularly hazardous.

DR. C. P. McNABB, of Knoxville:

There is no question but that there are many cases of floating kidneys, as they come before any busy physician every week, and the essayist brought out one point worthy of note, that is, that the twelfth rib crosses the lower pole of the right kidney, and it is the right kidney that is nearly always the movable one. I have seen very few movable left kidneys. By placing the patient on the back and putting the left hand under the back up close to the spine, pressing firmly just below the twelfth rib and tilting up the kidney, and telling the patient to take a short, quick breath, I have seen a movable kidney descend that would not be displaced in any other way. That is the method I invariably adopt in examining for movable kidney. In ninety per cent of the cases of hysteria or neurasthenia you will find a movable right kidney: but whether it is the cause or effect, I will not undertake to say. I believe from personal observation that they are present in ninety per cent of the cases of sexual neurasthenia in men. I have three cases now under observation that I am satisfied are much influenced by movable kidneys because measures to support the abdominal viscera have benefited the sexual weakness so much.

I desire to refer to another point, namely, the frequent failure of operations for the fixation of movable kidney to benefit the patient. Fully fifty per cent of the operations done for movable kidney are worthless. I have several patients whose right kidney have been operated on, and in some of them the results have been good; the patients have been much benefited, but in others there has been no benefit, because of the fact mentioned by Dr. Crook, that a very large percentage of these cases have associated Glenard's disease, and it does no good to operate on the kidney when the stomach and intestines are hanging down and pulling on the mesentery. I don't believe any man ought to operate on a floating kidney, it makes no difference what the symptoms may be, until he first distends the stomach and colon with gas or water, and learns whether there is a general enteroptosis or not. If that is present, let the kidney alone.

A word or two about the corset. I use the corset myself in these cases. There are from forty to fifty women around Knoxville now wearing a bandage or corset of my own invention. I tell them to take a good piece of canvas or some material of lighter structure, and go to a dressmaker, and have the dressmaker make and fit a bandage to the abdomen, just as she would any other garment, making the bandage so that the support will be from below upwards, taking up darts here and there until there is even and firm pressure and a perfect fit. If this is properly done, in cases of movable kidney and enteroptosis, it will give much relief. Such corsets or supports should be made only by skilled tailors or dressmakers, as there is a good deal of art in making a serviceable bandage, and it is impossible to select one from

a stock assortment that would fit every one, and it is doubtful if a proper fitting ready-made one could be found for any case.

DR. SUMPTER (closing the discussion) :

I feel very grateful for the discussion that my paper has elicited. If I were to ask to have the roll called in this audience of men who have palpated the abdomen for movable kidney in a woman who has been complaining of dyspepsia for the last ten years, I wonder how many affirmative replies would be received. How many of us do this unless we have made it a careful study? Or who have had the experience which I had a few years ago, and was very much mortified in having made a diagnosis of movable kidney, and later on finding that a surgeon had fastened the kidney, and from that time the patient regained health, became strong, and looked me in the face with a degree of satisfaction possibly greater than she knew? Since that time I have watched the abdomen for a scar, and the next fellow who catches me will have to be smarter than I am in making examinations. I am not a hobbyist, but I believe a man should be as exact as possible in all abdominal work to eliminate every possible condition other than that which he diagnoses.

I wish to reply to Dr. Miller, of Knoxville, by saying that the object in writing any paper is not to put in it the technic of operations, as I think it is a mistake to do so, because usually one has enough other material to present. Then, too, text-books are usually replete with the technic of operations, method of suturing, etc.

As to the object of this paper, I could not deal with movable kidney in a twenty-minute dissertation, as it would take over twenty minutes to take up the etiology, and I wish to thank the gentlemen for bringing out the various points.

As to the leaning position mentioned by Dr. Miller, when the muscles are relaxed, with the woman on the table, I ask her to bend her hips and knees. This may seem like an awkward position, but in order to do this, I have the assistance of the woman's husband, if strong enough, to hold her body, so that she can bend her hips and knees, and this aids very materially in making a diagnosis.

I wish to thank Dr. Cooke for referring to Dietel's crises, as they represent exaggerated conditions of kidney symptoms. They have been revived in the last few years, some believing that Dietel's crises are diagnostic to a great degree of movable kidney.

With reference to the differential diagnosis, I will say that I prepared this paper, hoping some of us, when we find patients suffering from conditions in the abdomen we have been unable to relieve, such as dyspepsia, gall-stones, etc., could discover movable kidney and get results.

I will simply say this in reply to Dr. Frierson's question, that the percentage of cases in which relief has been afforded has been satisfactory in my practice, but the percentage as to complete cure has not been exactly estimated, and I have found most men in giving their statistics speak of relief having been afforded in the greatest proportion of cases, and I can testify as to cures in my own work.

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. ADENOIDS.

C. H. DAVIS, M.D., KNOXVILLE.

IT is remarkable that there are known so many things or structures about the human economy that we have ignored for so long, only to wake up, as it were, to find that these ignored things were of vital importance in our work and study. As long as a century and a half ago, just when the science of Rhinology was in its swaddling clothes, it became known that there existed in the vault of the normal pharynx a coating of lymphoid tissue which extends downward to the posterior or lateral walls, and which is known as the Pharyngeal Tonsil.

In 1860 a writer first described an abnormal enlargement of this tissue. In 1865 Voltolini and Lowenberg made further observations as to these growths, and of their probable relation to deafness. To William Meyer, of Copenhagen, in 1868, is due the credit of having first recognized the clinical importance of adenoid enlargement, coupled with rational suggestions as to its surgical treatment.

The earliest symptoms of hypertrophy of the pharyngeal tonsil is in infants who have to stop nursing, for breath. The condition is principally and primarily a disease of child-life, or infancy, and is probably present at time of birth.

Adenoid tissue is vascular and contains lymph cells and fol-

icles. In childhood the most common form met with consists of a soft, spongy; pendulous mass, hanging principally from the vault of the pharynx, which, when seen by posterior rhinoscopy, has a whitish, stalactite appearance, or, better still, it has the appearance of small wine grapes hanging in more or less of a profuse cluster from the vault of the pharynx. The younger the child, the softer the growth. As puberty approaches, the tendency is toward transition into another aspect which warrants nose men to divide adenoids into two classes or forms. The first has been described. The second is of comparatively seldom occurrence; it is solid and fibrous, of a reddish color, and smooth though irregular in form. As the patient advances in years, the growths become more flat, and are eventually lost sight of as an irregularity, although from them comes a considerable secretion, which is the beginning of the meanest troubles in nose surgery—Post Nasal Catarrh.

The natural tendency of adenoids, and all lymphatic enlargements, in fact, is to atrophy; hence, when not treated adenoids will in time become so reduced in size as to no longer cause nasal obstruction; though, by this time, irreparable damage may have been done through their presence. Atrophy is most noticeable at puberty, though the diminution of nasal obstruction is as much due to the beginning enlargement of the naso-pharynx which takes place at this time, as to the atrophy of the adenoids.

The condition wherein adenoids are observed has been called lymphatism, and associated with the adenoids will generally be found hypertrophy of other lymphoid tissue, as, for example, the faucial tonsil—that tonsil we all know so well. Hebrews are most afflicted with the disorder.

The symptomatology is simply a clinical picture which, once seen, can never be forgotten. Children with adenoids are generally pale and poorly nourished. They display a tendency to stunted physical growth. The complexion is pale, and anaemia is generally present. Should there be a family tubercular taint, the likelihood of its developing into activity is increased.

The appetite is fickle; little patients will eat ravenously at times, and at others there will be a loathing of food, especially for breakfast. Indigestion, abdominal pains and constipation are almost always complained of.

A hacking cough is oftener present than not; some demonstrate a throat uneasiness by any grade of noise, from clearing the throat to positive "croupy" cough. The cough is largely due to the dropping of viscid, muco-purulent secretions from the pharyngeal vault onto the inflamed larynx. This post-nasal secretion is one of the most prominent symptoms, together with an abnormal dryness of the nostrils. When the cough is pronounced, the faucial tonsils are generally found to be enlarged. In some cases, the cough is of the character of whooping cough; false croup and *laryngismus stridulous* are observed at times.

The sleep of an adenoid patient is characteristic, snoring or breathing noisily, and often dribbling at the mouth. Nightmares are observed, and an especially prominent neurosis is bed wetting. The patient is always restless; in search for breath, kicks the cover off, thereby catching fresh cold; in fact, the adenoid child is always very susceptible to colds and generally has one on hand. No less an authority than Dench states that "A cold in the head in a child under twelve years of age almost invariably indicates adenoids." Paroxysmal attacks of sneezing, hay fever, or asthma may be reported. The smell is impaired, the eyes are weak and watery, and headache is complained of. Nose bleed is not infrequently observed.

The voice is characteristic, and should never be lost sight of. A child thus afflicted will say "baba" for "mamma," "sprig" for "spring," "Dashville, Teddessee" for "Nashville, Tennessee," etc. Such deformity of speech, if you please, is due to the location of the nasal obstruction and to the paretic condition of the soft palate. Indifference of speech is to be noted, even stuttering.

More or less nasal obstruction is present, which may be intermitting and is more pronounced at night, so that mouth breathing is resorted to. An intermitting quality of nasal obstruction in children always suggests adenoids. The respiration is noisy, especially when eating or sleeping.

Impairment of hearing is one of the most commonly observed, as well as the most serious, results due to the presence of adenoids. The tendency to deafness is present, transient or intermittent, also occasional earaches, tinnitus, or suppurative discharge. Aural complications are present in eighty per cent of

cases. Many pathetic cases of deafness, and even deaf-mutism, are due to adenoids.

May I not refer to the physiology of the nose? Dr. Edwin Pynchon, of Chicago, compiles it in the following language: "The function of the nose, as is well known, is principally to warm, humidify, and free from dust and germs the inspired air, and thus prepare it for the lungs. Noxious vapors are rejected by the nose, as they provoke protective sneezing. Another physiological function of the nose is in combination with its accessory sinuses and cavities to act as a sounding board for the voice. Lastly, the nose is the organ of smell, and when the smell is impaired, noxious vapors are not likely to be recognized and rejected. In order to humidify the inspired air, the nose secretes approximately one pint of serum, in adults, in twenty-four hours, which must be evaporated in order to humidify this air. When the nose is occluded, air cannot pass with sufficient freedom to evaporate the nasal secretions, hence it thickens and becomes a microbe-laden, catarrhal discharge, which, in turn, intensifies the rhinitis already present, and through which the nasal secretion is further deteriorated. In a well-balanced nose, no two opposing surfaces should touch, and thus air can pass to every recess of the nasal fossæ. By this occlusion before mentioned, the supply of imperfectly prepared air engenders passive congestion of the mucous membrane lining the air tubes. This makes osmosis more difficult; that process whereby the blood is simultaneously oxygenated and freed from carbonic acid gas."

As my friend and teacher, Dr. Wm. L. Ballenger, of Chicago, puts it: "When the air cells are thus irritated, they do not extract enough oxygen from the air to completely oxygenate the blood, and carbon dioxide is the result. Carbon dioxide is a violent poison to the leucocytes, hence their germicidal power is impaired, and the system is open to the invasion of the various morbid germs. Therefore, stenosis of the respiratory tract of the nose causes auto-intoxication by the over-production of carbon dioxide." There is, furthermore, a marked susceptibility to acute bronchial catarrh, from breathing cold air, and this, in turn, predisposes to pneumonia. And, again, with the adenoid patient, viscid muco-purulent secretions from the naso-pharynx are constantly swallowed, and often produce coughing. Being swal-

lowed, they produce stomach trouble, and cause mal-assimilation, intestinal derangement, and, particularly, constipation, hence auto-intoxication is thus induced in another manner in addition to the previously alluded to defective purification of blood.

Now let me insert a plea for the little victims of this awful malady. The treatment is operative, and there is nothing that is done in all surgery that is so productive of results—substantial results—that make for a happy, hopeful progress of the patient throughout life, incidentally making a reputation for the operator that is all out of proportion to the work done. I modestly claim remarkable cures of bed-wetting that the general practitioner might envy. There have been repeated convulsions, diagnosed epilepsy, that have been cured under this treatment. There are other nervous reflexes that are relieved, to enumerate which would take long pages to describe.

When a child begins to develop in every way, bodily and mentally, it causes parents to sit immediately up and take notice. Such work is good work, and it is good to be the author of it. About the keenest pleasure I know is when I am driving around Knoxville to be accosted by the cheery welcomes of rosy children, who were almost wonderfully brought to this state of health from backwardness and stupidity—from anæmia to health. They take their places on the roll of honor at school, whereas they were seemingly lacking in any sort of pride that belongs to the normal child.

With all these results, and with the honor attached to the relief of the child that there is, I make one plea—in every case of a child who is chronically unwell, headachey, constipated, intestinally deranged—look for adenoids.

DISCUSSION OF THE PAPER OF DR. DAVIS.

DR. M. M. CULLUM, of Nashville:

Mr. President.—One of the most far-reaching discoveries in medicine was made when Meyer outlined the pathology of adenoid tissue. There is probably no operation which is fraught with more brilliant results or more lasting good to the patient than the removal of adenoids in cases in which it is indicated. Future generations will be spared a great deal of deafness through the removal of these growths. Perhaps no operation makes such an impression upon the public or has attracted

their attention more than this, on account of the results achieved. It is getting to be now that the laity is able to diagnose adenoids and insist on their removal. In the schools in the East, New York, Philadelphia, Chicago, and the larger cities, they examine every child that is admitted for the presence of adenoids and enlarged tonsils, and if a child is found to be so afflicted, it is given a card to take to the parents, describing the nature of the trouble, and requesting the parent to take the child to a doctor, with the result that the doctor points out how much good can be accomplished by operation. The parent takes the child to some surgeon and has an operation performed. And it often happens that children who have been unable to keep up with their classes, and were usually at the foot, in a few months after operation were found to be leading their classes. Of course, this makes a great impression both upon the public and upon the school people.

There are a great many interesting points about adenoids that might be discussed, but, of course, the subject has been discussed from every point of view. There is some question, however, as to the age at which adenoids are to be found. It has been my experience that adenoids seldom cause symptoms before the child is two or two and a half years old. I saw one child that was operated on at four months. I have operated on children myself at the age of fifteen and eighteen months, but, as a rule, the adenoids seldom develop before they are two and a half years old. And then comes the question of recurrence. We will be asked by the parents, "Will these growths come back?" Where they have been removed thoroughly, it is not likely that there will be a recurrence, but sometimes in spite of a very careful and thorough operation, where every vestige is removed, the disease recurs. My belief is that in those cases the growth is not through developing. We take off a portion of it and development goes on, and operation has to be done again. I have seen possibly half a dozen recurrences in my experience, but where a thorough operation is done, recurrence is not to be expected.

Another very interesting point in connection with adenoids which has attracted my attention is the effect they have upon the eyes of children. I have seen a number of cases of ulceration of the cornea which seemed to be directly attributable to adenoids. I recall two cases that had ulcers of the cornea which had been treated for about two years. The ulcer would be cured, and in a short time it would break down and recur, and the children in each case had what we might call a chronic ulcer of the cornea for two years. I treated each one of those patients for about two weeks. I examined them when they first came, and tried to see whether there were adenoids present, but in those two instances there were no symptoms which would indicate the presence of adenoids. The children breathed through the nose properly and had none of the other symptoms which are usually present. There was no deafness or deformity of the face, and I hesitated to recom-

mend operation, but as I saw the ulcer was not getting any better under the usual treatment, I advised operation in both instances. I operated on them, of course, under anesthesia. I operated on one case at the hospital, and when I went back the next morning, the ulcer was absolutely gone. There was no sign of it. I operated on the other case at my office, under ether. The child was brought back the next morning, and in that case, too, the ulcer was gone. I have watched those children since, and there has been no recurrence of the ulceration. I do not know what the connection is here, but there is evidently a very close one. Then there is the question of heredity. I think these conditions are markedly inherited. Where we find adenoids present in a child, we are apt to get a history in one or the other parent of them, and where we find them present in one child, we are likewise liable to find them in the other children of the family. There are many factors which influence the production of adenoids and enlarged tonsils, but heredity is one of the strongest.

We may discuss with propriety operating on these cases with or without an anesthetic. This has been a bone of contention among operators for a good while. It is a question that will have to be settled largely by the age and character of the patient, and by consultation with the parents as to whether or not they are willing to submit the child to the administration of an anesthetic. Where a child is of good disposition, and is willing to undergo the operation, I would prefer to do it without an anesthetic, but a small child cannot understand what you are doing, and as it is likely to struggle and fight, I think it is far better to give an anesthetic and do the operation in that way.

DR. WILLIAM D. SUMPTER, of Nashville:

In connection with this paper and discussion of adenoids, I wish to call attention to a case that came under my observation some years ago, in which a specialist had carefully examined the child with the laryngoscope and other necessary apparatus, and said to me, "There are no adenoids." At that time I knew a great deal less than I do now, and accepted his statement, and went away happy. But the child had symptoms of snoring at night, muffled voice, mouth-breathing, saddle-arch, and mental hebetude. With all these symptoms well known, I left the doctor's office, hoping what he had said was no mistake, and that the child had acquired the habit of snoring. Not long after this, these symptoms persisting, I went to a specialist with the child again, and said to him, "Doctor, I believe this child has adenoids. That was my presumptive diagnosis." He went through a similar examination, and said, "No, it has no adenoids." I then took the child to another specialist, who, after examining it, said the child had adenoids. His diagnosis pleased me, and operation proved it correct. A certain amount of contraction of the hard palate is said to invariably accompany cases

of adenoids. The hard palate in this case, instead of being roomy with a dome, had a sharp angle, and this was my reason for the diagnosis. In all subsequent cases of adenoids I have never failed to see this contraction of the hard palate.

DR. W. A. BRYAN, of Nashville:

While good authority has been given for the statement that every case of cleft palate is associated with adenoid hypertrophy, in my experience I have seen a good many cases of cleft palate, but have not always seen that, yet always when there is cleft of the palate, there is a distinct hypertrophy in one mass, frequently called adenoids, which can be cut off.

DR. DAVIS (closing the discussion):

There is always present in every case of cleft palate I have seen enlargement of adenoid tissue, the faucial tonsil, lingual tonsil, and all the rest of the lymphoid tissue in that neighborhood.

A point I brought out, but did not dwell on at length, is with reference to the character of the deformity it produces, where there is lack of development of the superior maxillary bones. It produces squirrel-like teeth. The arch, instead of being curved, is shrunken, like the so-called saddle-arch of dentists. It is associated with adenoids, if present for a long time, together with lack of development of the nares themselves.

The gentleman who spoke about ulcerated eyes is right. I have two or three theories to offer in regard to that. One of them is phlyctenular keratitis and diseases of the cornea due to malnutrition, incidentally, on the ground of malassimilation. The other is direct infection. We can get repeated infections of the middle ear from the secretion of the adenoids. A child inflates the ears, blows secretion in there, and there is infection. - The same is true with regard to the lacrimal ducts. Many can blow secretions from the nose into the eye. I spoke of the eye conditions in a general way. The mental condition that prevails in these cases is undoubtedly due to a lack of proper assimilation of food. The appetite is fickle. There is a resorption of waste products, and a direct connection of those adenoids with the pituitary body at the base of the brain, that strange body that increases in cases of acromegaly, etc.

Dr. Cullom brought up the question as to whether we should undertake these operations for adenoids with or without anesthesia. There is no child, no matter how large or small it is, that needs an operation for adenoids, that can successfully disassociate the idea of excruciating pain with any sharp or cutting instrument. Therefore, men with the reputation of Dr. Cullom should have an anesthetic administered, because no operator can take out successfully adenoid tissue when a child is squirming, and the idea of butchery dominates that child the next time

it comes to the office. When the operation is done under an anaesthetic, the child has no vision of horror after it. The child has confidence in you, and knows you are the person who relieved him. Therefore, I make it a rule never to do a curettement of adenoid tissue without an anaesthetic. It is a remarkable fact, and a sort of paradox in these cases, that chloroform is the most acceptable anesthetic for children, although it is attended with danger. Lymphatic children are susceptible to the action of chloroform. However, the anesthetic need only be given to the stage of stupefaction, holding the child still, and letting him wake up by the time you get through.

RETENTION OF URINE IN A FEMALE CHILD.

T. J. HAPPEL, M. D., TRENTON, TENN.

MY excuse for presenting a paper at this meeting at all is the fact that when one has had an unusual case, it should be reported. It is also true that when we report what seems to be rare cases, we find others who have had similar ones.

August 6, 1907, I attended Mrs. W. in her second confinement. Her labor was short and normal in every way, being in marked contrast with her first. In her first labor there was a breech presentation; in this one a vertex. The mother had always suffered from constipation, but had never had any cystic trouble of any kind. The baby weighed at birth eight pounds. She grew fairly well, but was extremely constipated, for which the mother used all the ordinary home remedies, including suppositories of soap, rectal enemas, and purgatives *per os* of various kinds. After a period of unusual constipation, the rectum became irritated, causing evacuations every hour, and frequently oftener. Going to the drug store to get some preparation of rhubarb, she procured a prescription from a physician whose child had suffered in a similar manner a short while before. She was given direction how to use the remedy, and was further told that if relief was not promptly obtained, to use paregoric with it.

On September 27 the use of the remedy was begun, but with

no effect whatever. On that day the mother was sure that the kidneys had acted, but could not recall any evacuation of the bladder on the 28th at all. Was sure that there was none on the 29th or 30th. She called the physician's attention to the non-passage of urine on the 28th, and was directed to use some nitre for the relief of the trouble.

On the 30th the baby was extremely fretful and restless, passing small, yellow actions from the bowel about every half hour, but not a drop of urine. The physician in attendance directed warm applications over the bladder, and in the afternoon undertook to pass a catheter, but without success—having recognized a bladder distended till its outlines could be distinctly seen reaching as high up as the umbilicus.

On October 1 I was called in consultation. I had never before in my more than thirty years of general practice seen a case of retention of urine in a *female child*, and was not prepared for the immense size of the bladder, reaching in its then distended condition above the umbilicus, and laterally as far as the anterior superior spinous process on each side.

Persistent efforts were made by myself and the doctor to introduce a catheter, holding the child in an exaggerated lithotomy position, in a good light; finally having recourse to a small two candle-power electric light in our visual inspection of the vaginal parts in our efforts to locate the meatus. Every device that could be thought of was resorted to in our efforts to pass the catheter, but to no avail. The conclusion finally reached was that the overstretched bladder had shortened the urethra by distending it to aid in accommodating the quantity of urine in that viscus to such an extent that the meatus had been drawn almost posteriorly to the public arch. Finding that it was impossible to empty the bladder with a catheter, we decided to aspirate, entering it above the pubis. Under all aseptic precautions, the needle was made to penetrate the bladder, and we drew off more than a pint of urine, and, fearing to fully empty the bladder, we withdrew the needle. The relief given the child was almost instantanous, and she was soon in a quiet sleep after she was put to bed. Before removing her from the table, however, further efforts were made to locate the meatus, but without success. Hot applications were directed

to be made over the bladder, and a dose of castor oil was ordered given to open the bowels.

On October 2, 8 A. M., the bladder had refilled, and was apparently as large as it was the day before.

I was again called, and every possible means was used, except anesthesia, to catheterize the baby, but, as before, without success. The aspirator was again resorted to, and a larger quantity of normal urine was drawn off than on the preceding day, emptying the bladder as nearly completely as it could safely be done through an aspirator needle. A visual examination was again made of the parts after finishing the operation, without locating the meatus.

October 3d no urine was passed, and on the 4th the bladder was again overfull. After consultation, it was decided to be advisable to aspirate further, as cystitis was sure to follow. It was decided to anaesthetize the patient with chloroform, and again, in this relaxed condition, when there could be no possible resistance on the part of any of the muscles, to attempt to use the catheter. The dangers of the anæsthetic were explained to the family, and they agreed that in case of failure with the catheter we might proceed to do a supra-public cystotomy, and pass the catheter from within out, and secure drainage till the wound had healed. Every preparation was made for the latter operation, so as to avoid a second anæsthetization. Chloroform was administered without the least difficulty, despite the age of the child; and, when there was no resistance on the part of the labia to any manipulations, the search for the meatus urinarius was systematically begun. At the normal location there was nothing resembling it, and just at the edge of the anterior entrance to the vagina it could not be found. Finally, with the posterior part of the vagina well retracted, which resulted in drawing down the anterior part of the canal, the flattened and drawn-upward entrance into the bladder was located. Even then a catheter could not be passed till a small silver probe had been introduced into the urethra, and with it holding open the meatus, the catheter was finally made to enter the bladder, which was then completely emptied. While the catheter was in the urethra, the meatus was carefully inspected and located for future reference. It was found to the left of the median line, and so far up on the anterior

wall of the vagina as to be found only when the posterior wall was forcibly pressed backward and downward. Nearly a pint of urine was again drawn from the bladder. The last portion of it presented a cloudy appearance. The catheter was cut off to within two inches of the vaginal inlet, and was retained by means of adhesive strips to prevent its being extruded during any movements of the child, or any contractile efforts of the bladder. The end of the catheter was covered with absorbent cotton, which the mother was directed to remove as it became saturated with the outflowing urine. At our next visit on the following morning, the bladder was washed out with sterile water without removing the catheter, but it was decided to plug the free end of the instrument so as to make the bladder begin to resume its normal functions by retaining the urine. The mother was shown how to manage the catheter, and was directed to have as much urine retained as possible during the following night, that we might be kept fully informed as to the condition of the bladder. The next day there was a slight rise of temperature, with the child restless and fretting. When the urine was allowed to escape there followed about an ounce of muco-pus. As had been agreed in consultation, there was prescribed for the child urotropin, every four hours, to be administered in a little mother's milk. The bladder was flushed with borated water, and the catheter was withdrawn. No urine was expelled during the next twenty-four hours, and at our regular visit the catheter was passed without much difficulty, and was again fastened in with adhesive plaster, being retained this time forty-eight hours, and then in some way expelled. Knowing now the location of the meatus, the catheter was reintroduced with comparative ease, and after the bladder had been washed out, was removed. On the ninth day the catheter was passed for the last time, the child after that passing urine normally. After the first day the urotropin was administered three times in twenty-four hours, and as the pus reduced in quantity, was given once daily, and discontinued as soon as all evidences of bladder irritation had subsided.

The child's bowels, after the attack, continued obstinately constipated, and various measures were resorted to to remedy this condition. Oat meal gruel was given without success. (The

mother had used all kinds of purgatives, including soap and glycerine, etc., without getting any lasting benefit.)

I finally directed her to supplement her nursing with cow's milk, or malted milk, to which had been added a teaspoonful of cream. This prescription produced better results than any other, making the actions soft, whereas before they had been hard and dry.

On November 29th there was a return of the retention, but by patiently persevering in the effort to catheterize the patient, it was done, and after a few days of trouble the urine began to pass normally, but not as often during the twenty-four hours as is usual with babies. The mother reported to me a few days ago that it was no uncommon thing for the child to urinate not oftener than once in twenty-four hours, and then only after making much effort to do so. The constipation, though not so bad, still continues.

Now as to the etiology of this case. There were evidently two factors entering into it: one causing the retention of the urine, and the other rendering futile the first efforts to use the catheter. The nervous mechanism of the rectum and bladder being intimately blended, the irritation of the sensory nerve endings of the rectum gave rise to the irritation of the bladder, and consequent retention, and the displaced meatus being drawn upward by the full bladder, was compressed by the sphincter muscles easily against the pubes, causing the catheter, if it ever came in contact with it, to glide by. The retention was no doubt aided or permitted to increase by the effect of the paregoric in paralyzing the muscular coat of the bladder so that no effort was made by that organ to empty itself. We cannot look upon this condition as a disease *per se*, but as a result of some *causa causans*. I find the literature upon this subject so scant that I am induced to present the report of this case, in order to impress a few facts that I have thus late in life learned, viz.:

1. You do not always find the meatus urinarius where you are told to look for it. In a case of obstetrics a short while before this case, when it became necessary to use the forceps, in attempting to catheterize the patient, after searching in vain near the normal site for the meatus, it was found opening just below the clitoris, the urethra passing downward and backward and then upward into the bladder, making the length of it almost double

that of a normal urethra. In the case of this baby an almost opposite condition of position, as already described, was found to exist. At no time in the future can a catheter be passed in this case without exposing the parts.

2. In this case it was shown that although a child of two months of age urinates normally as often as every thirty minutes, and at intervals not greater than two hours, when awake, this child passed not a drop of urine for at least sixty, and, perhaps, seventy-two hours.

3. That aspirating the bladder on two successive days did no harm, and that this was done rather than anæsthetize the child in its then condition, risking the possible rupture of the bladder, which has occurred even when the catheter has been used.

4. The successful catheterizing of the child under the anæsthetic, when, the bladder having been reduced in size, it ceased to drag the meatus upward.

5. Attention is called to the fact that the catheter was retained in the bladder for forty-eight or sixty hours, being held in position by strips of zinc oxide plaster.

6. Another point of interest is the means adopted to make the bladder resume its proper functions by stopping up the catheter and causing a retention of urine for several hours, then removing the retaining plug and allowing the urine to escape, thus encouraging the contraction of the bladder.

7. The small amount of inflammatory trouble resulting from the use of the aspirator, and the retention of the catheter, and the prompt response to the urotropin, and washing out of the bladder deserve comment.

An investigation of the literature bearing upon the matter of retention of urine in children shows that it is not abundant.

In the *Medical News*, New York, June 18, 1904, Drs. Valentine and Townsend summarize as follows in regard to Vesical Retention of Urine: "(1) When danger to life is not imminent, the domestic methods ordinarily employed may relieve the vesical retention, provided no mechanical obstacle exists. (2) Diuretics, diluents, and antispasmodics are of no use in vesical retention of urine. (3) Opiates and a general anæsthesia are useful only under certain circumstances. (4) Capital surgical intervention may be necessary to cure the basic conditions, but urgent

symptoms can, in most instances be relieved without endangering procedures. (5) Only most exceptionally does a case present which cannot be relieved by minor procedures. (6) No bladder should be suddenly emptied because of danger *ex vacuo.*"

From these conclusions no one can dissent, but I would emphasize their second conclusion by this further statement that not only are diuretics and diluents of no use in vesical retention of urine in infants, but are positively dangerous from the fact that the increased activity of the kidneys brought about by the use of such remedies causes a greater and more rapid distention of the bladder. Opiates are negatively of utility by lessening the secretion of urine, and after the bladder is over-distended, relieving the pain consequent thereupon.

Anæsthetics are, at times, as in this case, an absolute necessity. The resistance of the patient, using the voluntary muscles, will often deflect the catheter from a female meatus; especially is this true in the case of children.

It must not be forgotten in our efforts to catheterize that an overdistended bladder may be ruptured, hence the utility of an anæsthetic when attempting to use a catheter in such cases as the one reported in this paper. All of us will readily agree to their fifth deduction, and the sixth one should never be forgotten.

DISCUSSION ON THE PAPER OF DR. HAPPEL.

DR. C. P. McNABB, of Knoxville:

Mr. President.—I fully agree with Dr. Happel about the harmfulness of opiates in such cases as he has reported. Opiates will produce retention of urine, and it seems to me, in cases of this kind, they are always contraindicated. Where there is simply a weakness of the muscular coat of the bladder, which we so often see in elderly men, there is theoretically no better remedy than strychnia and small doses of physostigma salicylate. These things powerfully contract the muscular coat of the bowel, and I see no reason why they would not act well in weak bladders. In this case the obstruction was positive and it was difficult to overcome, and would have taken the introduction of a catheter or probe to overcome it, but in ordinary cases, where we have simple atony of the muscular coat of the bladder, the administration of remedies that have a direct contracting or tonic effect on the muscular coat of the bladder are indicated, and are often beneficial. He has well said that the administration of diuretics is harmful, especially

when given to old men with retention of urine, as they increase pain by further distenting the bladder. A good way to treat many of these cases is to give an active purge, *i. e.*, a good dose of calomel, which often seems to exert a good influence over this retention. Then by the administration of strychnia in considerable doses, large enough to have a positive effect on the muscular coat of the bladder, you obtain satisfactory, though temporary results. I have never tried physostigma salicylate, but from its effect on the muscular coat of the bowel, I believe it would be helpful in these atonic bladder cases.

DR. HAPPEL (closing the discussion) :

I did not see the case until the bladder was in an extremely distended condition, on the third day of the retention, and then it was too late to administer strychnia or any other remedy for the purpose of emptying the bladder. The child has had strychnia since then as a tonic, but the condition has not been perfectly relieved. The child will go twenty-four hours without passing urine, and then pass it with considerable effort. The physician who had the child in charge administered calomel first. The case reported is the only one of its kind I have seen in thirty-five years of practice.

UNUSUAL SYMPTOMS IN DISEASE OF THE VERMIFORM APPENDIX.

W. A. BRYAN, M. D., NASHVILLE.

THE question of the treatment of appendicitis has been settled in favor of removal of the offending organ. Few or none will doubt the correctness either of the statement or of the fact. But every man who examines the abdomen frequently, and especially those who are expected, after their opinion is given, to follow it with a removal of the appendix, sees cases, many of them, who do not show frank symptoms of this disease, even when he is confident that the symptoms seen are the expression of appendicular inflammation, at least of some pathology there; other cases who have appendicitis and show the most glaringly deceptive symptoms; and still many others who are on the border line, and may or may not have the disease, some of them

anxious to have a diagnosis made in the affirmative that they may compete in their social circle with some hero or some heroine who has just returned from the hospital, cured; others having so great fear that the new vampire will alight upon them in the quiet of the night and eat out their vitals while they sleep, that they imagine they have it every time their attention is called to their bellies. These go to every immune and ask him how he suffered until they gather enough data to settle upon a diagnosis which they take to their surgeon friends and ask for confirmation.

We may admit now that however much a neurasthenic may need appendectomy, that operation should be expected to give relief in that patient as in any other, namely, to the symptoms only that grow out of that particular lesion. Appendectomy is not a panacea, and if there is anything a wise surgeon flees from, as from the wrath to come, it is from doing what has been termed elective operations on neurotic patients. The appendix gone, they eternally want you to explain why the scar hurts worse than the original trouble, or why the pain and the associate symptoms remain after that center of all offenses is gone, and your answer outwardly is a subterfuge, inwardly an oath. That these things are true, no one will doubt, and so it becomes necessary for us to know appendicitis, its usual, its unusual symptoms, lest we lose a life by failure to operate; to know the numerous semblances of appendicitis, lest we operate without benefit and have to justify ourselves by saying, when we see it's normal, "Oh, well, it's better out than in!" It might be said by the same speaker, "the price is better in than out," and with about as much justification.

The usual attack with frank symptoms, classical now, could be mistaken only by a novice. The unusual, the freak attacks, are exceedingly deceptive, and fortunate is the man who escapes. To illustrate, within the last few weeks I have seen two superior diagnosticians call a case of stone in the left ureter appendicitis, and another case who was so free from symptoms as to render doubtful, very doubtful, the advisability of an operation, except on the advice of his physician, who observed him during three attacks; and yet his appendix was very inflamed, adherent, almost black, turgid, and filled with pus.

That now classical little group of pain, tenderness, fever,

nausea, vomiting, abdominal rigidity and constipation serves us well when the patient is accommodating enough to furnish the symptoms in their order and in proper connection and place. But when the pain is off a little from the proper points, when the tenderness is greater elsewhere than over the right iliac fossa, when the vomiting is absent or induced by a patient because he is nauseated, when the fever is absent or no effort has been made to determine its presence, when the rigidity is questionable or slight and somewhat universally distributed over the abdomen, when constipation is absent, perhaps replaced by a dysentery, with mucous, purulent or bloody stools, there's another tale to tell. The story of the ease with which some great diagnostician recognizes appendicular troubles becomes a sounding brass and a tinkling cymbal. The search briefly of some literature on difficulties is thrown in the way of accurately recognizing that a diseased appendix is present has charmed me, both because it is an endless task, and because it gives a review of the vast details of abdominal diagnosis. It is difficult, though, to treat of so vast a number of variations in so short a paper.

That appendicitis has been mistaken for nearly every intrasomatic lesion, from pleurisy, pleuridynia, cholecystitis and perforated gastric or duodenal ulcer on the one hand to volvulus, the sigmoid and acute inflammations, and even neurosis from the uterine adnexa, cannot be gainsaid. That the appendix may be situated on the right side or the left, above or below the naval, in the pelvis, or out of it, originate on one side and be adherent to the other, besides being either intraperitoneal or extraperitoneal; that it may be susceptible to acute inflammatory processes, or chronic or intermittent, or may suffer from mechanical interruption, or may be the site of tumors; that these inflammatory and tumor processes may be primary or secondary—all these do not particularly facilitate the diagnosis of questionable cases. One could not hope to clear up the labyrinthine maze, only to call attention to certain minutiae, the remembrance of which may be of value in some critical time.

First and simplest, the appendix is so variable in its position that while one who examines the abdomen frequently does not ignore McBurney's point, yet a strict demand is not made that the point of tenderness shall be immediately under this nominal

spot upon the abdominal wall. It is becoming customary to speak of the tender spot as being in the right iliac fossa. The range away from the classical point of McBurney, as seen frequently in average, may in causal cases have to be extended until there escapes no region in the abdomen which may not at times give origin to tenderness on pressure during appendiceal inflammation. A cecum too little or too much descended determines whether the point discussed is above the iliac fossa or in the pelvis. Retention of infantile types will fix the appendix at the stage it has reached anywhere along the course of its rotation and descent, while transposition actually gives us the symptoms in the left instead of the right fossa iliaca. A meso-colon is usually short, thus holding the cecum and the base of the attached appendix fairly to one site in that neighborhood; the meso-colon may be long and allow a wide range of motion in any preferred direction, or in case of disease, an adhesive attachment to some structure half or more across the abdomen. Add to this the fact that the appendix itself may be short or long, and have a liberal or meagre meso, may be coiled or straight, at times even may lie buried underneath the peritoneum, touching it only on one side, extra-peritoneal, as it is called; add this, and the possible positions remind one of a chess board. Furthermore, certain pathological changes, especially hernia, aggravate the situation still further. So peculiar symptomatic facts, even distressing facts, grow out of this structure which, so simple in the typical case, has the power to imitate nearly any other acute intra-abdominal inflammation.

Suppose the appendix situated in a hernial sac; most of us who operate on hernia have seen this; is it not even more susceptible in this circumstance to predisposing causes of inflammation than in its usual site? And when so placed and inflamed, what diagnosis could be made of it? How could one say that one was not dealing with a strangulated or an inflamed hernia, and how could one determine whether, even when after an easy reduction, there was not a gangrenous knuckle of gut lying inside the abdomen? Shands has reported a case of inflamed, almost ruptured appendix, alone in the inflamed sac of a right femoral hernia, and Coley has seen one in a left-sided inguinal hernia;¹

¹ Annals of Surgery, Vol. 40, page 380, A. R. Shands.

while Shands could find no similar case reported, the possibility will hereafter always confront us. LeBoutillier² reported an interesting case to the New York Surgical Society. It was a strangulated congenital right inguinal hernia in a twelve-weeks-old infant. Strangulation lasted ten days. Three days prior to operation a physician succeeded in reducing it. Symptoms of distention and tenderness of abdomen continued. Eight hours before operation hernia redescended and scrotum was red and tender. The sac contained cecum and inflamed appendix. His case recovered, but what of the attempt at reduction, and what if reduction had been attempted the second time? In those cases where adhesion of an appendix to the bladder or rectum occurs, not only may usual or unusual signs and symptoms of appendicitis be seen, but the disturbance in the bladder or rectum will also be present, and this may be so marked as to overshadow the true pathology. I. S. Stone³ reports a case of adhesion of the appendix to "the right upper cornu of the bladder." An abscess had formed; there was no disturbance of the bowels, no symptoms of peritonitis. After three weeks symptoms of cystitis appeared, which terminated in the discharge of a pint of pus from the bladder. So in cases where there is to be rupture into the rectum, the sphincter becomes relaxed, a slimy mucous discharge passes, and the pain may be referable chiefly to the region secondarily involved.

Abscessed appendix, pointing in the right side of the scrotum, is reported by Robert G. Le Conte.⁴ This patient had classical symptoms. In seven days the pain suddenly extended to the right scrotum and swelling developed there. There was swelling over the right lower quadrant, and this extended down to the scrotum. The right ring and scrotum were filled with a mass the size of an orange, which discharged a very large quantity of pus on incision. Later abdominal section disclosed a sloughed off appendix lying behind the pelvic peritoneum in a pocket which was connected with the scrotal incision by a sinus. The appendix contained a stercolith.⁵ Bispham reports a case where the pain

² Annals of Surgery, Vol. 46, page 645, LeBoutillier.

³ Annals of Surgery, Vol. 39, page 265.

⁴ Annals of Surgery, Vol. 43, page 155.

⁵ Journal of the Association of Military Surgeons of the United States, September, 1906. Peculiar Case of Appendicitis.

was just below and to the right of the twelfth dorsal vertebra, with slight swelling, no redness, abdomen soft, not distended, no pain on palpation except at the point mentioned. He vomited only when food was taken. Incision revealed a hematoma in the latissimus dorsi. Temperature went up, and a second operation through the same incision, after some tenderness and tympany appeared in the abdomen. This revealed several pus cavities in the muscles of the back, and an appendix perforated at its tip. A case of my own recently gave such a train of symptoms that several physicians were persuaded that the lesion was renal, since the pain was over the lower pole of the right kidney. Operation showed a retrocecal ruptured appendix.

While discussing these abnormal positions and attachments of the appendix, it may not be amiss to allude briefly to an article published in 1905 by Joseph A. Blake,⁶ covering briefly a class of cases that annoy the patient more than they endanger him, a class where operation may be said to be done to relieve symptoms rather than remove an inflamed organ, although most of us prefer to know inflammation is or has been present when we operate, and feel a twinge of disappointment—perhaps wrongly—unless we find changes in accord with the usual conception of what a diseased appendix is. Blake's idea is briefly summed up in the title of his paper, "Malposition of the Appendix as a Cause of Functional Disturbances of the Intestine." The cases he reports certainly bear out his claims as far as the cases go, and most of us have seen cases whose operative showings did not justify the symptomatology so far as inflammation entered into it, relieved of their symptoms after operation. Abnormal descent of the cecum short meso-appendices, abnormal attachments, unusual traction, are the developmental conditions causing symptoms short of appendicitis, but certainly worthy of the surgeon's consideration. When the last word is said many obscure cases of abdominal symptoms will be ultimately traceable to this miserable adjunct to the cecum.

THE APPENDIX IN TYPHOID FEVER.

That typhoid fever ulcerations may occur in the appendix is a fact often demonstrated; and that appendicitis due to other

⁶ Annals of Surgery, Vol. 42, page 394.

causes than *bacillus typhosus* may develop during the course of typhoid fever has likewise been proved over and again. Rolleston is quoted by Kelley as reporting sixty cases of typhoid examined, of which fourteen appendices were involved; of these, seven were ulcerated, two were perforated and five were simply swollen. Kelley further quotes from a series of reports, which in all include 328 cases of typhoid fever, with the appendix perforated in thirty of them, or nearly 10 per cent. The symptoms of the typhoid, which may already be clearly developed or still *sub judice*, and the knowledge that in any case a perforation may occur, render the diagnosis of appendicular involvement very problematical, so much that one cannot say in many cases which is present, a perforation or an appendicitis, for either condition is difficult at times, and when they occur synchronously the highest diagnostic judgment is demanded. The point is not whether a certain patient has typhoid fever or appendicitis; it is whether this typhoid case has appendicitis or not. The history of previous attacks of appendicitis will be of value, for typhoid will not only precipitate an attack in such cases, but by its very nature has power to initiate an inflammation of the appendix *de novo*. That the leucocyte count is uncertain in these cases has been established. It is not absolute in those who have no typhoid. The criterion, it seems to me, must be left for each man to establish for himself; but it is agreed that the classical symptoms of appendicitis coming on in the course of typhoid are not distinctive enough to settle a diagnosis. Further, it is claimed that the more acute the onset of peritoneal symptoms at a time favorable to perforation, the more probable is the diagnosis of the latter condition. However the decision may turn, whether to appendix or perforation, whenever either of them is present nothing is gained by differentiation except a postponement of operation in case it is appendicitis, and it would seem that in case of indecision this is always unwise, for if an intraperitoneal condition is present in sufficient intensity to remind one of typhoid perforation, certainly no time should be lost in entering the abdomen. If failure of the temperature to drop and lack of sudden pain be present, then whatever the diagnosis may be, it will incline away from perforation, either of the intestine or appendix, and we may wait, not only may, but should.

The intensity of the symptoms, as well as their nature, will aid the surgeon in deciding for or against the operation.

APPENDICITIS IN CHILDREN.

Easy as it may be to recognize in adults, in young children the picture is very different. The pain is usually present, vomiting occurs, and often is repeated many times; fever is present, and the child screams constantly. The abdomen is tense and tender and rigidity may be discoverable. Stoppage of feces and flatus are important when present, yet the number of cases having diarrhoea is emphasized. Kirmisson, in the *Revue de Chirurgie*, reports a case in an infant eleven months old, and found twenty-five similar cases, nine under twelve months, and seventeen in the second year. The development of the disease is unusually rapid in children, and unless operated on very early, the severe cases all die. Nine of the twelve younger cases of Kirmisson were bottle babies. Glazebrooks' case (*New York Medical Journal*, March 11, 1905), died after an illness of three and one-half hours. The child was fourteen months old, the symptoms those usually seen in shock. R. C. Dun (in the *Glasgow Medical Journal*, June, 1905), states that appendicitis is not uncommon in children. He insists, upon closer attention to recurrent attacks of colic, and warns of the association of diarrhoea and irritation of the bladder. Dowd (*Medical News*, New York, September 23, 1905), summarizes the peculiarities of appendicitis in children as follows: "(1) The rapidity and insidiousness of the disease are much greater; (2) the percentage of diffuse and general peritonitis is greater probably because the omentum is less apt to close the appendix; (3) the pain is almost always present, but it is more difficult to interpret; (4) the vomiting is nearly always present, and is frequently many times repeated; (5) abdominal palpation, in the majority of cases, is as satisfactory or more satisfactory than in adults, but in a few cases it is absolutely misleading; (6) constipation is much less likely to be present; (7) they have a greater tendency to peritonitis and immediate operation is to be advised."

APPENDICITIS IN THE NEURASTHENIC.

The physician is likely to be misled by examining a neurasthenic into believing that appendicitis is present and responsible for the abdominal symptoms, and only a thorough examination, on the one hand, of the patient and a patient inquiry into the history may clear up the situation, or on the other hand positive signs of disease of the appendix only should lead us to advise operation. Granting that appendicitis of a mild degree may at times be the cause of the neurasthenic symptoms, it still holds true that with the majority of the class the appendix is only a temporary side issue, and as soon as it is removed, the scar or adhesions get credit for even worse symptoms than the appendix caused. I think we should look askance upon any appendix whose entire symptomatology is far removed from its anatomical site; at least the greatest conviction should be had that the appendix is the cause. When it becomes necessary to advise one of these to undergo appendectomy, he should plainly understand that it will relieve all symptoms attributable to it, and those only. Treves investigated forty-five operated cases who complained that they were not relieved by operation. He found the appendix imperfectly removed in two cases; associated ovarian in nine cases; persisting or relapsing colitis in eight cases; persisting local pain in seven cases; neurasthenia or hypochondriasis, five cases; continued attacks due to gallstones, three cases; due to colic, two cases; due to movable kidney, two cases; due to renal calculus, one case; and unexplained cause, one case; and a tender mass in the right iliac fossa, five cases. It would seem that a far higher percentage of our unrelieved cases in this country are due to neurasthenia. The only advantage appendectomy could have would be to place the patient in bed for a time and make him feel assured that something very proper is being done for him.

During pregnancy appendicitis can arise, and it would seem is more likely to come up on account of pregnancy, which is clearly a disturbant factor, especially in those who have had previous attacks. So that any history that looks suspicious of appendicitis should cause the attending physician to instruct the women to call him if severe pains come up, or in the presence of other signifi-

cant symptoms. The diagnosis is to be made on the same grounds as in uncomplicated cases; still the field is obscured in pregnancy, so that physical signs are more difficult to discover; and the presence of so varied abnormalities during pregnancy will ever be a diversion from the true pathology. Fränkel (Kelley's Gyn., p. 734) suggests that turning the patient on her left side will aid in separating the gravid uterus from the mass of appendiceal exudate and thus serve as a help in the diagnosis.

The same facts obtain practically for appendicitis complicating abdominal tumors and cysts. The search for the history in either cases is an all-important point.

Similarly, at the puerperium appendicitis is frequently present, often misleading. David C. Hilton suggests it has often been the real cause of deaths which were accredited to puerperal infection. Hilton (Surg. Gyn. & Obstetrics, Vol. V, p. 44) gives a series of twenty-three cases coming on within ten days after labor. Of these, 45.5 per cent died, and 70 per cent of the total twenty-three cases had either a suppurative or perforative type. His words are: "The signs and symptoms occurring at this time are the same as at other times. The difficulty is to appreciate their true significance when they may be readily attributed to ordinary postpartum conditions. The pain of appendicular colic may be construed as 'after pains' in the first forty-eight hours following labor. Tenderness over the lower abdomen is also common to the early postpartum, and its true import can only be surmised when well localized. A slight rise of temperature and quickened pulse within thirty-six hours after labor may also be attributed to the absorption of ferments from the placental site. Moreover, when septic infection of the uterus or of the right adnexa is present, especially if it involves the peritoneum, the early diagnosis of appendicitis may be wellnigh impossible. The precise localization of maximum tenderness at McBurney's point is more characteristic of appendicitis than of tubo-ovarian tenderness. Careful and repeated precussion of lower abdomen is an important diagnostic method in assisting to localize the inflammatory process, unless uterine dullness occupies the field. The surest guide to an early diagnosis is extreme watchfulness on the part of the physician and careful inquiry as to whether the patient has ever had symptoms of appendicitis.

In eight out of the ten cases in which this item of the case history is recorded the patients related symptoms of one or more previous attacks. The circumstances connected with the child-birth, the ensuing pain, and tenderness in the lower abdomen, and a prejudice to the belief that chills and fever at this time mean pelvic infection, tend to throw the physician off his guard; and likewise to confuse him when mindful of the possibilities of appendicitis. Undoubtedly many women, the cause of whose death is announced by that self-sufficient blanket phrase, 'child-birth fever,' were the victims of postpartum appendicitis."

Tubercular conditions are by no means infrequent. Hemmeter, in an article published February 29, 1908, quotes Langfelt as finding in 120 cases of perityphlitis twenty that were due to tuberculosis. I cannot do better than quote Hemmeter's differential diagnosis for distinguishing it from carcinoma of the cecum:

Cecum Tuberculosis.

Age: Between 20 and 40 years.
 Duration: From 2 to 3 years.
 Lungs: Pulmonary Tuberculosis evident more or less.
 Tumor: Elongated; the intestine is palpable as an infiltrated, thickened cylinder.
 Stenosis: Always present, develops slowly, accompanied by striking, splashing and musical sounds.
 Stool: Blood and pus rare, tubercle bacilli frequently present.
 Fever: Generally present.
 Urine: Ehrlich's diazo-reaction positive.

Cecum Carcinoma.

Rare before fortieth year.
 Eight to nine months.
 Negative.
 Sharply circumscribed, intestines not palpable.
 Develops rapidly, acoustical signs not so pronounced.
 Blood and pus frequently observed; tubercle bacilli absent.
 Exceptional.
 Diazo-reaction negative.

This condition may be confused with fibrinous appendicitis, but Hemmeter thinks observation of the course of the disease will clear it up. "Improvement will follow in appendicitis of this type, with a palpable induration in the right iliac fossa, on proper treatment in bed, external application of heat, counter-irritation and careful diet; but the tubercular cecal tumor will not improve under such treatment. Fibrinous appendicitis is not a concomitant of pulmonary tuberculosis, whereas the tubercular cecal tumor is always secondary to pulmonary tuberculosis." (Hemmeter, A. M. A., Vol. L, p. 657.)

Besides the above condition tubercle may attack the appendix conjointly with the remaining peritoneal surfaces. Haubold (*New York Medical Journal*, February 3, 1906) reports a case in which the microscope revealed tubercle of the appendix. No foci were found in the peritoneal cavity, and physical signs revealed none in the lungs. This patient, however, died in nine weeks from an unstated cause.

Tumors of the appendix are of course rare. A few are reported in the literature, most of them malignant; very rarely a benign tumor has been seen. M. Vassmer (Hannover) has collected eighty-four cases of primary appendix tumors from the literature. They may cause no symptoms; they show symptoms of chronic or recurrent mild appendicitis; they may build on an old appendicitis or precipitate an inflammation, acute or chronic, of this organ. (*Deutsch. Med. Woch.*, S. 477.)

ACUTE DILATATION OF THE STOMACH.*

CHAS. P. M'NABB, KNOXVILLE.

ACUTE GASTRECTASIS is an acute dilatation of the stomach, striking without warning, and with tornado-like violence. It has appeared under so many different conditions and as a fearful complication in so many diseases, and is so often wrongly diagnosticated, that I am sure our time will be well spent in its consideration here this evening. In view of the fact that cases have been reported from time to time since 1859, and that in 1873 Hilton Fagge accurately described the condition, it seems strange that modern authorities have but little more than mentioned it in their text-books on medicine. In the considerable number of books on Practice and Diagnosis that I have, there are only three that more than refer to it in the most casual way, and neither of these authors give anything like a clear or a full description of this formidable disease. From the

* Read by Title.

literature obtainable, there are two etiological factors, one or the other of which is apparently present in every case, regardless of whether it is of primary origin or secondary to surgical shock, or anaesthesia, or an acute infectious disease, or some chronic malady, in all of which it has appeared. When I speak of it being primary, I, of course, refer to the cases reported as following the ingestion of an overfull meal, and in which no obstruction was found after death.

The causes, so far as known, are toxic and mechanical. Full fifty per cent of cases that were reported showed mechanical obstruction of the duodenum, caused by pressure between the root of the mesentery and lumbar vertebrae, and for this to occur, it seems necessary that the small intestines must hang over the brim into the pelvis. In order that the intestines may exert enough traction on the root of their mesentery to press the lower portion of the duodenum against the vertebrae with sufficient force to occlude its lumen, it is probably necessary that several contributing factors be present, to wit: Dorsal decubitus, physical weakness, the small bowels must be empty, and their mesentery just long enough to allow them to hang over the brim into the pelvis, and not long enough for them to rest comfortably on the pelvis floor or on the pelvis organs. When these factors are present, and duodenal obstruction has occurred, it seems to my mind there is still a long stretch of imagination called for to account for the very rapid and enormous dilatation of the stomach, which may destroy life in a few hours, on grounds solely mechanical.

Is it not probable that a reflex neuroparesis is brought about by this construction, which at once sets at naught the dynamic force of the stomach, opens the floodgates, and sets off the gastroxia, which supplies the excessive vomitus soon so evident. When we approach the toxic element in the etiology of acute gastrectasis, I confess that I stand hat in hand, almost helpless, before a mountain of perplexity. We can, to some extent, appreciate and understand the role of anaesthesia and narcotics in occasionally paralyzing certain muscular organs of the body, and the swallowing of chloroform or other charged mucous during anaesthesia, and the elimination and re-absorption of certain drugs by the stomach, would be liable to occasionally exert a lethal effect

on the nerves and walls of the stomach, but the autotoxemias following in the wake of indigestion, acute fevers, and chronic diseases of different organs and parts of the body, which at rare intervals produce acute dilatation of the stomach. What are they, and how do they act? To know and understand them, "O wad some power the giftie gie us!"

This disease or condition has been seen at all ages from childhood to old age, in both sexes, and all social conditions, but appears to be more frequent in men than women, and between the third and fourth decades of life.

Morbid Anatomy.—The stomach is much distended and cylindrical in outline, hanging downward from the cardia and pylorus almost or quite to the symphysis pubis in two equal lines, or portions in such way as to convert the lesser curvature into a sharp angle, resembling the letters "u" or "v," the cardiac end or limb, however, being much the larger of the two, and this dilatation continues in the constriction cases on to the point of occlusion in the duodenum. The color of the stomach appearing when the abdomen is opened, is described as "dark red," "gray," "bluish white," and "dirty gray." In two or three autopsies the wall of the stomach was said to be normal; in one it was thickened, and when recorded at all in all other autopsies, it was very thin. The muscular coat is very much attenuated, the muscle bundles separated and torn apart, and there is splitting *muscle fibres*.

There were many hemorrhagic points in the mucosa and the sub-mucosa. The blood vessels, especially of the mucosa, were widely distended, and their walls thinned. Epithelial desquamation and superficial erosion of the gastric mucous membrane was also noted. The stomach contents were watery, greenish brown, and blackish in color. Free H.Cl., in variable percentage, was noted in some autopsies, and in others it was absent, and the same is true of lactic acid. Bile and diastatic ferment, and also hydrogen sulphide, have been noted in a few instances.

Symptoms.—Vomiting is noted by all writers on this subject as one of the earliest and most persistent signs. It is copious, and the vomitus is greenish, brownish, or blackish colored, the last doubtless from slight hemorrhage. Pain and tenderness are usually present and may be epigastric or diffused over the entire abdomen. *First:* Is distressing and the result of the profuse

gastrorrhœa, and muscular cramps in the extremities, sometimes follow the same cause. *Distension* is to be expected and is generally greatest in the epigastrium and to the left of the umbilicus, but may be evenly distributed over the abdomen. Tympany is present, but percussion, dullness, splashing and succussion waves in the most dependent parts of the abdomen, are often to be observed. Constipation and diarrhœa have both been seen in acute gastrectasis, but constipation nearly approaching obstipation is oftenest present. The pulse is fast and feeble, and the arterial tension is low. The cardiac sounds are feeble, the first sound from innervation and muscle weakness, and the second sound from vasomotor dilatation. The skin is pale or cyanosed and leaky, the extremities are cold, the temperature below normal. Respiration shallow, irregular or sighing, and hiccoughs may annoy the otherwise disturbed respiratory function. The hollow eyes, haggard countenance, drawn lips, working nostrils, and pointed nose complete the picture of collapse that so soon envelops the unfortunate victim.

Diagnosis.—From chronic dilatation of the stomach the personal and previous history and absence of collapse and other extreme signs and symptoms are, I think, sufficient, but perforative peritonitis and intestinal obstructions are not so easily differentiated.

Perforative Peritonitis appears suddenly in the course of appendicitis, typhoid fever, suppuration of some abdominal organ or ulceration of the stomach, intestine, gall bladder or its duct, pancreatic duct, Fallopian tubes, uterus or bladder, and nearly always preceded by definite symptoms of the causative factor. There is sudden severe pain, vomiting, with shallow respiration, and rapid pulse, soon followed by a reactionary fever, and tympany, with great tenderness of abdomen, and rigid recti muscles. Abdominal distension soon obliterates hepatic and splenic dullness. Some of the above signs and symptoms are present in acute dilatation of the stomach, but the more intense pain and tenderness with fever and rigid recti and absence of normal hepatic dullness goes far to distinguish acute peritonitis from acute dilatation of the stomach in which fever is rarely present, and there is relaxation of muscles of abdomen. The distension being much greater on the left side may obscure the splenic dullness,

but the hepatic area is not liable to be much, if at all, diminished. In acute peritonitis the patient lies on the back, with the limbs flexed to relax the abdominal muscles as much as possible; whereas in the cases I have seen, that I think were acute, gastrectasis, the patients maintained the dorsal decubitus; the limbs were not flexed and the muscles of the abdomen were not contracted. However, I have seen no mention of this point by those whose diagnosis was confirmed by autopsy. Bearing in mind the fact that at least fifty per cent of acute gastric dilatations are caused by obstruction of the lower end of the duodenum, and that the signs and symptoms are practically the same from all causes, however brought about, we readily appreciate the difficulty of differentiating acute dilation of the stomach from acute intestinal obstruction. In intussusception the tenesmus, bloody stools, tumor or the presence of the invaginated bowel in the rectum, would make that type of obstruction easily recognized. Again, inguinal hernia, it is assumed, would not be overlooked; then, too, internal strangulation and volvulus present a clinical picture, calculated to puzzle the very elect when the circumstances make acute dilatation of the stomach probable. However, stercoral vomiting is exceedingly rare, if it ever occurs in acute gastrectasis. And it is almost sure to appear in not many hours after acute intestinal obstruction lower than the duodenum. The stomach tube is an absolute necessity in treatment, and its effect in diminishing distension is greater in dilatation of the stomach than in intestinal obstruction, and again the dilated stomach admits a greater length of tube than it would if of normal size.

Permit me to briefly refer to two cases that have come under my personal observation, both of which died, but in neither was an autopsy allowed. No. 1. Mrs. Blank, charity surgical case in Tennessee Medical College. Service, Dr. S. M. M. Having no notes of the case, I quote from memory, and can give only the most salient points in the case. Patient apparently twenty to twenty-four years old, mother of one child, in the birth of which she sustained a perineal laceration down to sphincter muscle. Operation perineorrhaphy. Before anæsthetizing I examined her and found no evidence of disease in any internal organ. Chloroform was used by the drop method. She was soon anæsthetized

and showed no distress or embarrassment either of circulation or respiration. Operation but a few minutes, and only a few grammes of chloroform were used. Recovery from anaesthesia was prompt, and there was very little shock, but there was some vomiting. Nothing unusual was noted for the first twenty or twenty-two hours, when the patient became suddenly and violently ill with severe pain in the belly, vomiting, rapid feeble pulse and was very thirsty. Abdomen was much distended, bowels had not moved, and very little urine had been passed. No gas had escaped from the bowels. Temperature was sub-normal. Limbs not flexed and muscles of belly were not rigid. I saw her in this condition at 1 P. M., twenty-two hours after operation, and thought it due to gastro-intestinal fermentation. A hypo of morphine and atropine relieved the pain and benefited the vomiting and hypodermics of strychnine and digitaline improved the circulation. Calomel was given and an enema ordered, and when Dr. Miller and I called at 8 P. M., the symptoms had all improved considerably, but the condition was far from satisfactory, and at about 10 or 11 o'clock the next morning there was a reoccurrence of the vomiting, pain, thirst, tympany, feeble pulse, shallow breathing, cyanosis, collapse, soon ending in death. An autopsy was not allowed, and the diagnosis remains in doubt, but I am personally satisfied that it was a case of acute dilatation of the stomach.

My second suspected case was a strong, healthy young man, a student in Maryville College, that I saw last spring in consultation with Drs. Gamble, McCullough and Lovingood. Two days before my first visit, the patient passed a calculus from the right kidney after fifteen to eighteen hours intense suffering, for the relief of which he was given six hypos of morphia $\frac{1}{2}$ and atropia 1-150 gr. There was severe vomiting during the passage of the stone, which did not cease, but in a few hours grew worse; after the calculus was expelled, profound collapse soon following. When I saw him, forty-eight hours after the stone was passed, his condition was as follows: Vomiting copiously, greenish fluid; very thirsty; abdomen greatly and evenly distended, and quite tender to palpation. Bowels had moved several times, temperature sub-normal, respiration shallow and irregular, pulse 160 to 180 per minute; heart, first sound inaudible; skin cyanosed,

extremities cold, countenance anxious, face drawn, pupils dilated, and voice husky. The fact that the bowels responded to laxatives, excluded obstruction and left acute dilatation of the stomach and perforative peritonitis to differentiate. The copious vomiting and the absence of fever and abdominal rigidity and of flexion of the legs favor acute gastric dilatation. The patient died on the fourth day of his illness. A post-mortem examination was not made. Prognosis is very unfavorable. About 72 per cent of the authentic cases reported have died, but the early recognition and proper treatment of these cases will undoubtedly lower the mortality record. Deaths from acute gastrectasis have been reported from three hours to sixteen days. Seventy-five per cent of deaths occur under five days.

The stomach tube should be used in every case of acute dilatation as soon as the case is seen, as it is of the greatest importance that distension be relieved before other therapeutic measures are instituted. Lavage with warm water containing salt or boracic acid in solution is beneficial, but I would caution against the use of more than two or three pints before its withdrawal, and also against the slightest violence in manipulating the tube when it is in the stomach. The next step in treatment, after emptying the stomach is to put the patient in the knee-chest position, favoring by posture the return of the small intestines to the abdomen from the pelvis, and thus liberating the constricted duodenum from its imprisonment in cases of that nature, and as it is impossible to know whether a given case is caused by obstruction, it is proper that postural treatment be tried in every case. Further than the above two measures, treatment is wholly symptomatic. Nourishment by enema and medication by hypodermic method. If pain is distressing, morphia very cautiously. Lavage for vomiting and distension. Heart weakness demands camphor, spartein, digitaline and strychnine—all by hypodermic needle. For paresis of stomach, eserine salicylate cautiously administered. For other features of collapse, hot normal salt solution into the bowel or by hypodermoclysis is indicated.

ABDOMINAL OPERATIONS DURING PREGNANCY.*

JOHN A. GAINES, M.D., NASHVILLE.

IN selecting this subject, I was impelled by a desire to disabuse the minds of many regular "practitioners of medicine" of a very popular fallacy, which regards all operations of this nature, as well as all surgical work as for that, practically barred from consideration, when pregnancy is an established fact.

My personal experience has not been great enough to warrant positive conclusions, and yet enough to show that in clean cases there is little danger to mother or offspring from such procedures. When this subject was selected, I was impressed by the meager reference to the subject in our standard texts and also, considering its importance, in the current journals. It was with great pleasure that my attention was called to a review of a paper published in the March 5, 1908, issue of the *Boston Medical and Surgical Journal*, by Dr. Malcolm Storer. In this he reviews the literature on the subject to the present time. Felner, up to 1903, had prepared a bibliography of 519 papers written up to that date. Since that time there have been written 181 papers on the subject, embracing in both series all surgical work during pregnancy. I shall not hesitate to quote freely from Dr. Storer's excellent review of the subject, especially with reference to the subject of this paper.

That operations for diseases or conditions that do not endanger the life of mother or child during the term of pregnancy nor at the time of delivery or puerperal state should be postponed, all agree. But that there is not anything in the pregnant state, *per se*, that forbids any necessary operation has been abundantly proven. Apparently the only thing that has a marked tendency to produce

* Read by Title.

abortion in connection with such operations is infection, especially associated with continued fever. The only exception to this rule is: that operations for inguinal hernia and in the region of the bladder and vagina have shown a higher per cent of abortions than any other type of work. Felner, with many others, "holds that in no case is the operation the direct cause of miscarriage, but merely determines a miscarriage that is bound to come any way." This statement, in my judgment, should be modified by the consideration of an infection of the wound. As suggested above, there should always be a positive indication for an immediate operation, and where it can be selected, a time other than which would have been the time of the regular period should be chosen. The habit of miscarrying will add to the risk, and in all cases the reflexes should be depressed with full doses of bromides and morphine for several days before and after the operation. If infection should occur, as fever constitutes one of the greatest dangers, keep the temperature down with baths, ice caps—or in some cases with antipyretics carefully given, using great care in selecting the subjects in which the latter would be used.

Of the conditions arising for surgical consideration during pregnancy should be mentioned myomata, cysts of the ovary, pyosalpinx, adhesions (inflammatory or produced premeditatedly as in ventral suspension or fixation), appendicitis and cholelithiasis. This list might readily be broadened to cover the entire range of abdominal affections requiring immediate operation, or in which immediate operation in the absence of pregnancy would add to the woman's safety. I shall not refer to many of these conditions specifically for lack of time in the period allotted to me.

Myomata of the uterus is best left undisturbed until time for delivery or until puerperium is completed. They very rarely seriously interfere with the growth or delivery of the child. They can be removed and often have been without interfering with pregnancy, but the danger is greater with operation in uncomplicated cases than without operation. Only $7\frac{1}{2}$ per cent of myomata cause serious trouble during or at time of delivery. The enucleation of a tumor from uterine surface would make a point of least resistance, with danger of rupture of uterus should miscarriage occur, and tumors, except such as demand hysterectomy,

will cause remarkably little difficulty if left alone. Ovarian tumors, on the other hand, often cause serious obstruction at delivery, and since their removal has practically no bearing on pregnancy, especially if done early, they should be removed as early as detected. In support of this statement I quote Bland Sutton (1901): "Where an ovarian tumor complicates pregnancy, the life of woman is imperiled throughout the whole of the term, the peril increasing with each successive month and culminating with labor."

In McKennon's collection of 183 cases, there were only 35 normal labors, 12 deaths—9 deaths being due to rupture of the cyst. In this same series 30 per cent of cases aborted. While operative procedure causes only or is associated with only 18 per cent for both single and double ovariotomies, the maternal mortality after operation is 2 1-10 per cent, as against 12 per cent without operation.

Pyosalpinx.—It is a notable fact that inflammatory processes of the tubes yield rapidly and undergo absorption in the majority of cases during pregnancy. Where these conditions are not of themselves the cause of threatened early abortion or do not threaten immediate danger to the mother, time should be given for their resolution, which I have many times happily observed before the fifth month of pregnancy, causing no disturbance at time of delivery. If, however, this happy result does not begin and give promise of restoration by the beginning of the fourth month or if abortion is threatened from the presence of tubal abscess, operation should not longer be delayed.

Adhesions to uterus and adnexa show a similar tendency to thin out and absorb during this period, but where the pain and nausea threaten the mother, or abortion from this cause seems evident, section should be resorted to and the adhesions released. If done early, the tendency to abortion from the operation is very slight.

Where appendicitis is present, of any degree, operation is positively indicated as the pressure and disturbed relations seem to aggravate the condition even in very mild chronic inflammation, and as has been shown, the risk to the mother is so great in suppuration or infection at time of delivery and the danger to the baby so much increased from infection and high fever in the

mother, that operation should be done in every case before this danger has arisen. The operation for appendicitis has no practical bearing on the pregnancy if done before suppuration or peritoneal infection has occurred.

The muscle-splitting operation obviates the danger of hernia, especially if the abdomen is supported by close fitting binder during labor.

Gall stone disease, if known to exist, has such a tendency to acute attacks following immediately after delivery (possibly as has been suggested, the abdominal contractions press one or more stones out into the cystic duct); that the mother's safety is increased and the baby not endangered by an early operation.

Personal observation suggests that many cases of persistent and what is termed pernicious vomiting of pregnancy are perhaps due to chronic appendicitis, gall stones or adnexal adhesions, and are in reality not uterine reflexes at all. Because there is usually a period of morning sickness with the majority of pregnancies the cause or causes of which are only guessed at and are certainly not always identical, we are too prone to shield ourselves behind this well-known fact and often grow careless in our search for the real cause. This tendency, too, is increased from the groundless and prevalent idea that pregnancy would preclude surgical relief other than emptying the uterus.

I have not had an extensive observation, but will report a few cases that seem of practical interest and that are illustrative of the conclusions drawn from the literature and experience.

I have purposely omitted from this brief statement of conclusions extensive statistics, and expressed the conclusions as reached by all having experience in this field and as borne out by personal observation. Statistics at best have only a relative bearing, and in the literature of this subject, especially as Dr. Storer suggests, are doubly uncertain from the fact that much of the material is from hospital observation, where it is fair to suppose that many cases were syphilitic or suffering from other systemic conditions that in themselves produce a marked tendency to abortion. Hence, the conclusions reached are more positively favorable than even the very favorable statistics would indicate.

CASES REPORTED.

Case 1. Mrs. _____. age 26.—History regarding general health, negative. Married at age of 16; became pregnant and developed so-called pernicious vomiting. Her physicians finally felt forced to produce an abortion, after which her vomiting ceased, but she was slow to regain her health. In two years she again became pregnant and immediately began vomiting. I saw her at the end of about ten days, thoroughly demoralized and in a state of dangerous exhaustion. In this case, as in the first, abortion was finally agreed to and produced, with prompt cessation of vomiting, but again with slow recovery. Again, about two years later, pregnancy took place. An earnest appeal was made for immediate relief, which was refused, believing, as I did, that she might be carried through this period, as in the meantime local treatment had restored a retroverted uterus to its position. As before, after every known means had been resorted to and with council, abortion was finally produced to save her life. I then announced the fact that I would not again produce abortion and advised the removal of the tubes to prevent pregnancy. This was readily consented to. At operation both ovaries proved to be markedly cystic—and to my surprise the appendix lay just over the brim of the pelvis enveloped in a mass of thin lax adhesions. Its walls were thickened and at several points its lumen was markedly constricted. I removed the appendix, both tubes and resected the diseased ovaries. Her menstruation has been regular and painless since this; and she gained thirty pounds in weight.

Later experience has made me wonder if it had really been necessary to remove the tubes and if the appendix had not been the real cause of her persistent nausea. This case is not germane to the subject only regarding the pernicious vomiting and for comparison with the following cases.

Case 2. Mrs. _____, aged 39.—General health fairly good. Had given birth to two healthy children, now living. With her third pregnancy she aborted after much suffering at about the forth month. A year later she aborted at about the third or fourth month. Two years later she aborted for the third time at about three months. At this time there had been great suffer-

ing and fever. The abortion was followed by a slow recovery, which was never complete. During all this time there was persistent digestive disturbance and constipation, and the abdomen was always tender. She came into my hands at about the fifth month of pregnancy in January of this year. She had been threatening abortion since the third month, was just recovering from an attack of lagrippe, was having pains every day so persistent that she could not rest at night or be on her feet without causing marked discomfort. Was suffering with nausea and abdominal pain and soreness. I made a diagnosis of chronic appendicitis, advised operation, which was agreed to by council called in the case. At operation the appendix was found surrounded by old adhesions and in a state of acute congestion. The night after the removal and for two weeks at intervals the uterine pains were quite severe and required pretty full doses of opium to prevent a miscarriage. Her stomach symptoms rapidly improved and in three weeks she was eating heartily, with no discomfort, and gives every evidence of going through to full term, and in better health than for some years previous. She has shown some tendency to abort from the first to seventh of each month, the normal time for her period.

Case 3. Mrs. ——, age 36.—The mother of six children, all living. Her health has been good and delivery normal in all but the last case. In this she had suffered with extreme nausea throughout pregnancy, but was safely delivered at full term, since which time, 1896, her health has not been good. There had been no puerperal sepsis following any of her deliveries. In December, 1907, she again became pregnant and at once began vomiting and suffering extreme pelvic pain. I was not consulted until in January, the latter part of the month. I then made an examination and discovered a mass on right side apparently in right tube. I at once suspected ectopia, but owing to her history, held her under constant observation. Her nausea was persistent, so much so she could not take food sufficient and was losing flesh and strength rapidly. Later her pelvic pain, which had been general, was localized on the right side, and became sharp, and on two occasions was followed by fainting, but with no evidence of hemorrhage other than the mass on the right side grew more tender and slightly larger. I, however,

at this time, made positive diagnosis of ectopic pregnancy, and in a few days operated, without council, which was refused.

I found a normal pregnancy. The appendix was down in the pelvis adherent to the right tube and ovary. The ovary was enlarged and sistic. The appendix was acutely inflamed and contained considerable hardened fecal matter. The appendix was removed through median incision. She did not vomit from the ether nor has she suffered from nausea since recovering from the anæsthetic, and at the end of four weeks was eating heartily of a full diet, and is now enjoying perfect health and digestion.

Case 4. Mrs. ——, rather a delicate young woman. The mother of one child eighteen months old.

The first pregnancy was associated with much nausea and distress. The delivery was at full term and followed by pelvic cellulitis. I first saw her when the child was about three months old. Local treatment improved her condition and I did not see her again until in February of this year (1908), when she came to my office for a prescription for persistent nausea. She objected to an examination. I gave her some remedy for her nausea and indigestion, instructing her to notify me if not improved and I would see and examine her thoroughly. I did not hear from her until the 14th of February. She had been vomiting persistently for five days and for two days had vomited considerable blood. She complained of no pain except in region of stomach and especially about region of pylorus or gall bladder. That night at 2 A. M. she was taken with agonizing pain in upper abdomen, but I was not called until early the next morning. I immediately diagnosed appendicitis and advised operation. Council was called, concurred, and that afternoon, February 15th, at operation a completely gangrenous appendix was found, which ruptured through a pinhole perforation near the base just as it was lifted out of the abdomen. The cæcum was gangrenous for three-quarters of an inch around the base of the appendix. This was cut out and the bowel closed by double row of Lembert suture. Here a serious mistake was made in not draining. My council, who is one of the best surgeons of Nashville, so positively advised against it I did not do so. The patient's nausea was greatly relieved immediately after the effects of the anæsthetic had passed off. She had a tendency to the formation of

gas with acute dilatation of the stomach, which for several days was very distressing. Her temperature was continuously 99 to 102 degrees F. There were no local signs of wound infection. Ten days later she complained of abdominal pain, but did not refer it to the uterus for several hours. When her pains became characteristic of labor pains, I was called. I found the cervix dilated and a six-month fetus was born in a few minutes after my arrival. The placenta and membrane came away complete. Three days later the wound showed some discoloration and an area of dullness indicated a collection in the abdomen. This was evacuated by opening the wound, discharging a large quantity of foul-smelling puss with the escape of considerable gas. There was, however, at no time any fecal matter and the wound has closed rapidly. The uterus was held high in the abdomen (reaching up to the umbilicus) by adhesions. There was no unusual bleeding and by the seventh day there was very little discharge and the temperature remained normal, until the twelfth day after miscarriage, when without warning there was a sudden and copious hemorrhage, which was controlled without packing the uterus. The uterus, however, under firm contraction drew up from below the fundus remaining on a level with the umbilicus. She is now, five days after the hemorrhage, doing well and gives every indication of recovery, but has had about one degree of fever most of the time since she reacted from the hemorrhage. In this case there is no question, but the septic temperature caused the miscarriage, as there was no disturbance from the operation, and I now believe if drainage had been instituted there would have been no trouble. My desire to get quick and firm union of the abdominal wall and the positive opinion of my consultant led me to omit drainage when, in the absence of advanced pregnancy, I would have resorted to it beyond question.

The conclusions to be drawn are quite obvious. Pregnancy is not a contraindication to needed operations. Unusual symptoms during pregnancy should demand a most careful search for causes other than pregnancy.

The safety of both mother and child may in many instances be markedly increased by abdominal operations.

That inguinal hernia and vaginal operations have the greatest percentage of abortions.

Septic processes with high or continued fever are most productive of abortion and operation should be resorted to, where possible, before this danger is present.

That uterine myomata are, except in rare instances, best left unoperated until at time of delivery, or, if possible, until after the puerperal state is passed.

The appendix is probably responsible for some if not most of the cases of pernicious vomiting of pregnancy. Nos. 3 and 4 of this report were unquestionably of this nature.

PROFESSIONAL COURTESY AND UNITY.*

E. H. JONES, M.D., MURFREESBORO.

THE cheapest investment known to have been made, ancient or modern, is Professional Courtesy. It yields more largely compound returns than any consideration yet devised. It generates friendship, the most sacred and endearing of all God-given ties in this life. Egotism, hatred, avarice, intemperance, immorality and infidelity are at enmity with professional courtesy and friendship. Any member desiring the strong arm of support, when he needs it most (in the ranks of his chosen vocation), must be worthy of them. All should be friends, promoters of each other's welfare, success and happiness. All gentlemen members of our profession will extend the proper courtesy and be friends. It is certainly the privileged duty of every physician, in his daily intercourse with his professional brethren, to treat them with the utmost respect and courtesy. It matters not how humble or obscure may have been the birth or surroundings of your brother practitioner in early life, or what may have been his calling or trade previous to his professional life, he has the same just claim on your kind offices, courtesy, favor and respect. Let us remember that while our brother may not have had the advantages

*Read by title.

of learned schools, colleges, etc., he may have been trained in one far superior for eliciting the powers of an original mind—that severe school of adversity, that perilous ordeal where the feeble-minded perish, but the great and pure of heart come out of the fires, purified and resplendent in tenfold brightness. We must remember that pride is unstable, vacillating and unsupportive. Desolate, indeed, would be any one unsupported by ties of friendship of those with whom he was in daily touch professionally. No one should expect fame or success upon the demerits of others; therefore we should never speak or act unkindly toward our brother M.D. All consultations should be honest, observing as our motto the Golden Rule, that divine expression fittingly wholesome in all stations of life, the palatial surroundings as well as the hut of poverty. Jealousy often prompts sinister remarks regarding a brother who is struggling in good faith to meet all the issues fair and orthodox in return for unprofessional courtesy and jealousy. This life is too short and offers too little in return for such unmanly policy that must, at some time, fade into reproach and degradation. The dissensions and animosities, the professional jealousies, the bickerings, the distrust and disfavor among us lead the public to question our sincerity, capacity and integrity; work to our own injury, lower us in the public confidence and esteem, weaken our cause and cast reproach and obloquy upon the science we should love, honor and cherish. They bring unkindly and ungenerous feelings, pervert our judgment, wear and distort our sense of justice, deaden the kindlier and finer feelings of the soul, and burden us with a load of prejudice, avarice, greed and professional distrust that will militate against not only us but against our chosen profession as well. Let us suffer ignominy and contumely ourselves and forever remain unrecognized by the world, rather than betray the confidence imposed in us by a professional brother. Let a spirit of fairness, of justice, of right prevail; let it actuate all in our professional intercourse with each other. Rather suffer wrong ourselves than inflict it upon those who call upon us to share their burdens and responsibilities. Then will the shadows of discontent flee away and the cheering sunlight or professional peace and prosperity dawn upon us to brighten our pathway, lighten our burdens and gladden our lives. The physician's life is set

in the mirror of time, reflecting the present and past, subject to the changes that may come at any time, frequently at unreasonable hours and unexpected places. Thus he knows not the time nor the place he may need the good opinion and offices of his associates. He should, therefore, carefully cultivate his eye and hand, his heart and mind in professional morals as a part of his medical education, that the call for help may meet that earnest response that would guard his honor and integrity and bravely meet any attempt at conspiracy and slander, falsehood and suits of malpractice. "Whatsoever a man soweth, that shall he also reap," is a divine injunction, and the thistles of unprofessional conduct will be blown by the whirlwind of resentment, and the thorns of retaliation be thrust deeper when the occasion comes, as it is sure to do. To the ideal or true physician, humanity is the same in every sphere of life. He sees oftener than any one else the elements of innate worth that hide in the cabin or lonely cottage as well as the vices and evil passions of the great. With nature his god, duty his watchword and an approving conscience his guide, he has faced the king of terrors in every form, and through all, has been the soul of honor; no trust betrayed, no confidence wronged, nor duty violated. The life of the physician who is true to the ethical laws of his profession and its traditions is a benediction, and he who lives such a life crowns himself and those to whom he ministers with unfading joy and blessings.

The basic principles of our much-favored profession should be honesty and integrity. The guiding of our every thought and deed would inevitably draw us all into that elevated sphere of manly courtesy to all. To casual observers often our lives seem one of conquest, often we allow sinister motives to enter, contaminating and polluting those higher senses and principles of honor that should characterize our most ardent endeavors to restrain and purify. We must merit what we obtain if we expect to hold it. The sad mistake is often made, that one can ingratiate himself or place the crown of proficiency upon himself by casting sharp or indirect reflections upon his professional brother. This is certainly not honest, manly, nor is it policy, and will most assuredly fail to meet the ends thus viciously sought and designed.

Malpractice suits would never germinate unless fertilized by

some dishonest brother. In consultations, the attending physician should act and be treated as the host, and every consulting brother should act and be treated as the guest. Both guided by pure motives, the patient is the recipient of our best efforts to relieve. United, we easily maintain the dignity and trust naturally accorded our chosen profession; otherwise, we woefully traduce the God-given advantages accrued by the name we bear. Now let the profession, as a unit, stand by the innocent victim when unjustly attacked, as if it were a matter of personal concern to each and every one, remembering that when one member suffers, reflex action is surely felt by all of the same organism.

In harmony there is life, in union there is strength; therefore we should be banded in the true spirit of fraternal love and sympathy, gloriously illustrating a brotherhood in all its relations, bearings, dependencies and coöperations. The objects of this association are to foster, advance and disseminate medical knowledge, to uphold the honor and maintain the dignity our profession justly deserves. Now, in the sincere spirit of fraternal love and unity, truly, hope that every member of the profession may have indelibly written in letters of gold upon his heart the Golden Rule, emulating its principles, ready to make sacrifices for the right, and reaping the rich harvest for himself, bless and honor the profession and all mankind.

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IN MEMORIAM.

DUDLEY DUNN SAUNDERS, M.D.

AFTER a long and eventful career as a practitioner of medicine, covering nearly a half century, Dr. Dudley Dunn Saunders died at his home in the city of Memphis, Tenn., February 24, 1908, two days before the seventy-third anniversary of his birth.

Dr. Saunders was born at the old Saunders homestead, Rocky Hill, in the north of State of Alabama, in February, 1835. He was graduated from the old LaGrange College and also from the University of the City of New York and received his degree from the University of Pennsylvania in 1856. Returning to New York, he served an internship in Bellevue Hospital and later spent two years among various European hospitals.

Returning to the United States, he located in Memphis, becoming rapidly identified among physicians as a man of rare ability. He enlisted in the surgical service of the Confederate Army and being eminently endowed by nature and thorough training, he was given various posts of responsibility and was complimented by the department in the following letter:

CONFEDERATE STATES OF AMERICA.

SURGEON-GENERAL'S OFFICE,

RICHMOND, October 5, 1864.

SIR—Medical Director Stout, in a report of his inspection of the condition of the Hospitals in the Army of Tennessee, reports that the hospitals under your charge are the most creditable in his department.

Surgeon Saunders and the corps of medical officers will please accept the thanks of this office for the creditable manner in which they have performed their duty.

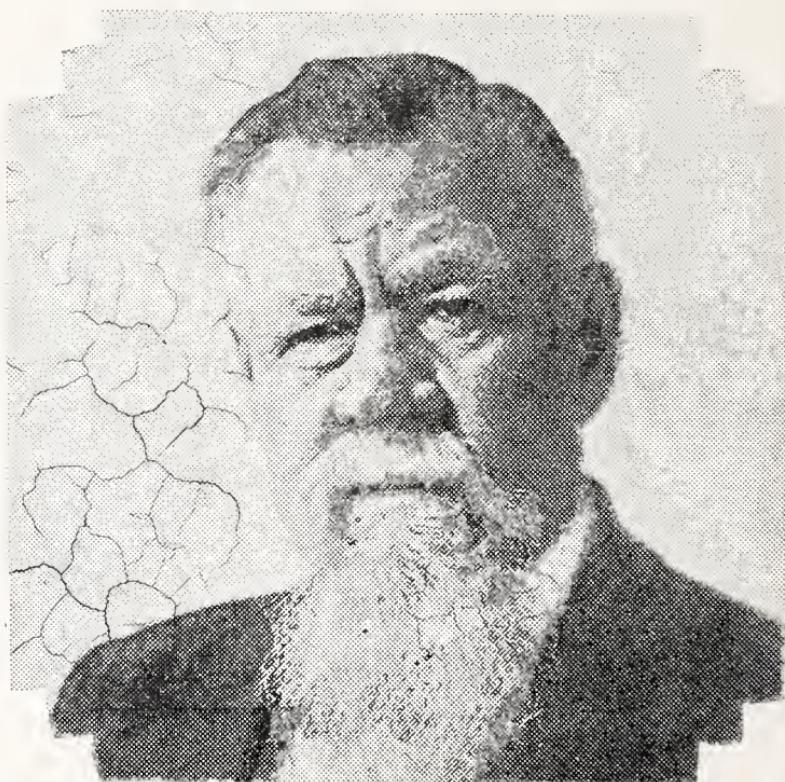
(Signed)

S. P. MOORE,

Surgeon-General C. S. A.

To Surgeon D. D. Saunders, through Medical Director Stout, Columbus, Georgia.

At the close of the war he returned to Memphis and resumed his practice. His colleagues respected and honored him and he



served with great dignity and efficiency as President of the Shelby County Medical Society, President of the Tennessee State Medical Association, and also President of the Memphis Board of Health, in which capacity he rendered creditable service during the yellow fever epidemic of 1878. During those trying times he was untiring in his efforts to alleviate human suffering

at any personal sacrifice, and was himself subjected to an attack of the fever.

He was a member of the Faculty of the Memphis Hospital Medical College, occupying at one time a professorship of Anatomy, and of Surgery, and in later years of Physical Diagnosis and Diseases of the Chest, of which chair he was recently made Emeritus Professor.

There was no retirement for this remarkable man. His practice extended to within a few days of his death.

Ripe in years, rich in experience, dear to the hearts of a large practice with whom he constantly came in touch, this gentlemanly, Christian benefactor laid down in the long sleep.

Tributes to his memory were expressed by various members of the local society in presenting the following resolutions:

Your committee, appointed at a called meeting of the Memphis and Shelby County Medical Society, February 26, 1908, to prepare and report to you at this meeting resolutions on the death of Dr. D. D. Saunders, respectfully submit the following:

WHEREAS, The death of Dr. Dudley D. Saunders, which occurred at his residence, No. 304 Shelby Street, February 24, 1908, has removed one of the oldest and best known citizens of Memphis, he having resided here since 1858; and

WHEREAS, By the death of Dr. Dudley D. Saunders, Memphis has lost one of its oldest and most esteemed citizens, one who was noted for his high, manly character—patriotic, self-reliant, and considerate—who, by his individuality, has left his impress upon this community for right living and high ideals, and a worthy example to others in all the different walks and relations of life; and

WHEREAS, This Society has lost one of its oldest and ablest members, who always, upheld its professional ethics and the obligation of membership, being an accomplished gentleman, an able physician, surgeon and teacher, combining all the essential qualities of the well-equipped professional man, able in practice, considerate but positive in consultation, eloquent and logical in debate; therefore, be it

Resolved, That while in the death of Dr. Saunders, his family has sustained an irreparable loss, he being affectionate, loyal and true to his domestic obligations; yet they have the happy reflection that his life was well spent, he being many years a professed Christian and a Mason; be it further

Resolved, That these resolutions be entered upon the minutes of this meeting, and a copy be sent to his family, with the deepest sympathy of this Society.

G. B. THORNTON,
W. W. TAYLOR,
J. W. PRICE,

Committee.

GEORGE ALFRED BAXTER, M.D.

DR. GEORGE A. BAXTER, graduate of Bellevue Hospital Medical College, 1873, died at his home in Chattanooga, February 12, 1908. He was prominent as a surgeon and interested in founding in his home city a general hospital, and by his personal effort secured for Chattanooga the Baroness Erlanger Hospital, in which he spent much of his time for the benefit of the unfortunate. He was a member of the faculty of the Chattanooga Medical College, in which he displayed much talent as teacher, being much beloved by the student body. As a surgeon he was bold, but not reckless, courageous yet careful, and withal successful. During seasons of epidemics of yellow fever and smallpox he was always in the forefront, doing a noble and never-to-be forgotten work, which endeared his name for all time to the community in which he lived, worked and died.

He was President of the Tennessee State Medical Association in 1890. He was a member of the American Medical Association, a Knight of Pythias, a Mason, and a member of the Episcopcal Church, to each of which he gave a share of his valuable time.

His health had not been good for two years, yet his death was sudden, a great surprise and shock to his friends and family.

We shall miss him, for his influence was for good in the community, both inside and outside of the profession.

LAWLER S. PRICE, M.D.

LAWLER S. PRICE, M.D., was born in Brownsville, Tenn., 1879, and departed this life in July, 1907. He was graduated from the Memphis Hospital Medical College, in April, 1900, and immediately began the practice of medicine at Monette, Ark., where he practiced till the summer of 1902, when he located at Mack, Lauderdale County, Tenn., at which place he practiced continuously till his untimely death while at Dawson Springs, Ky., where he had gone to recuperate and to recover from an attack of acute cirrhosis of the liver.

Although Dr. Price had been practicing but a few short years he had so conducted his practice that he had won many warm friends not only with the laity, but especially so with his professional brethren with whom he always kept in close affiliation.

While practicing in this county he had been a consistent, faithful and watchful member of the Lauderdale County and of the State Medical Associations.

Seldom has any physicians departed from among us so beloved and honored by all. He was an accomplished young man, a gentleman of elegant and refined manners, the most refined feelings and affectionate disposition; a man of integrity, manly courage and enterprise. He ranked high as a physician. His name will ever remain inseparably connected with our Society, and we will all sympathize deeply with his young wife and baby.

G. A. LUCK,
A. H. YOUNG,
W. D. MILLER,

Lauderdale County Medical Society Committee.

B. F. BAIRD, M.D.

DR. B. F. BAIRD, of Villo, Tenn., died January 21, 1908, seventy-two years old. He was born in Fayette County, April 27, 1836. He received a literary education in Nashville and entered the Memphis Medical College, from which institution he graduated in 1856. He practiced medicine in Fayette County until the Civil War opened, excepting one year in Arkansas, where he entered the Confederate service as surgeon to the Fifteenth Tennessee Regiment, and remained in the army until the close of hostilities. He then practiced in Fayette County until 1878, when he moved to Hickory Valley, Tenn. From there he removed to Villo, in 1889, where he practiced his profession until his death. He was a Mason and Knight of Honor. He was full of sympathy for his patients and conscientious in his work, which made him much beloved..

ROBT. W. TATE.

SAMUEL COWDELL ELLIS, M.D.

THE death of Dr. Ellis, on October 10, 1907, from cerebral hemorrhage, brought to a sudden and quite unexpected close a life full of promise. A graduate of Jefferson Medical College of Philadelphia of 1882, member of the Hamilton County Medical Society, the Tennessee State Medical Association and the American Medical Association, he was always an earnest advocate for the best in his chosen field. He had served as surgeon in the Canadian service for five years prior to locating in Chattanooga, where he established himself in the hearts of his patients and in the esteem of his professional friends.

LIST OF MEMBERS AND OFFICERS OF COUNTY
MEDICAL SOCIETIES OF THE TENNESSEE
STATE MEDICAL ASSOCIATION FOR 1908.

ANDERSON COUNTY.

E. M. Beasley	Coal Creek.
O. W. Beasley	Coal Creek.
Jno. Clear, <i>Secretary</i>	Clinton.
Joe M. Cox	Edgemore.
W. L. Carden	Andersonville.
W. H. Eblin	Wind Rock.
E. H. Ford	Coal Creek.
S. B. Hall	Clinton.
J. T. Hayes	Oliver Springs.
L. A. Haun	Coal Creek.
H. D. Hicks, <i>President</i>	Clinton.
C. B. Jones	Scarboro.
L. Lamdin	Andersonville.
C. B. Lee	Edgemore.
J. E. Nelson	Rockwood.
T. H. Phillips	Briceville.
W. D. Richards	Briceville.
C. C. Vinsant	Pless.

BEDFORD COUNTY.

M. W. Allison	Whittaker.
E. K. Blair, <i>Secretary</i>	Normandy.
E. M. Carney	Shelbyville.
W. F. Clary	Bellbuckle.
T. J. Coble	Shelbyville.
Jno. M. Cunningham	Shelbyville.
G. T. Drennan	Bellbuckle.
J. H. Dyer	Wartrace.
R. J. Fisher	Poplins X Roads.
J. K. Freeman	Bellbuckle.
W. G. Frierson	Shelbyville.
G. L. Landis	Unionville.
Jas. L. Morton	R. F. D., Shelbyville.
G. W. Moody	Shelbyville.
H. L. Nease	R. F. D. 8, Shelbyville.
J. S. Nowlin (deceased)	Shelbyville.

W. M. Orr	Bellbuckle.
F. B. Reagor	Shelbyville.
W. T. Sharp	R. F. D. 1, Shelbyville.
J. P. Taylor, <i>President</i>	Haley.
W. J. Trott	R. F. D. 1, Tullahoma.
Jno. L. Walker	Wartrace.
T. H. Wood	Bellbuckle.

BLEDSOE COUNTY.

Isaac Barnes	Atpontley.
J. P. Barnett, <i>President</i>	Pikeville.
W. H. Harris	Cold Springs.
I. L. McGinnes	Pikeville.
A. O. Meredith, <i>Secretary</i>	Pikeville.
E. W. Patton	Litton.

CLEVELAND MEDICAL SOCIETY OF BRADLEY COUNTY.

Geo. M. Bazemore	Cleveland.
R. L. Bean	Cleveland.
Chas. T. Carroll, Jr.	Cleveland.
P. Watt Cate	Charleston.
Thos. E. P. Chambers	Charleston.
W. R. Cochran	R. F. D. 8, Cleveland.
R. P. Cochran	R. F. D. 4, Cleveland.
Benj. F. Gates	R. F. D., Cleveland.
R. O. Kibler	Cleveland.
Thos. J. McKamy, <i>Secretary</i>	Cleveland.
W. R. Marshall	Cleveland.
E. A. Quinn, <i>President</i>	Cleveland.
G. A. Ramsey	Cleveland.
G. T. Russell	Athens.
Jno. L. Shugart	Cleveland.
Herman W. Shultz	Cleveland.
Rufus P. Sullivan	Cleveland.
Robt. L. Taylor	Cleveland.

CAMPBELL COUNTY.

R. H. Finley	Jellico.
R. L. Gallaher	Careyville.
William Gaylor	Jellico.
J. L. Hefferman	Jellico.
F. A. McClintock, <i>Secretary</i>	Newcomb.
J. D. McPhitridge	Fincastle.
A. T. Newman	Jellico.
W. W. Potter	Westbourne.

H. M. Robbins	Jellico.
J. L. Rose	Jellico.
Wm. B. Rose	LaFollette.
L. M. Scott, <i>President</i>	Jellico.
S. B. Snyder	Jellico.
D. M. Woodward	Careyville.

CARROLL COUNTY.

G. C. Bryant, <i>Secretary</i>	McLemoresville.
J. B. Cox	Huntingdon.
A. I. Dennison	Atwood.
W. N. Enochs	Huntingdon.
A. M. Grizzard	Huntingdon.
G. P. Hicks	Hollow Rock.
E. W. Hillsman	Trezevant.
Jas. H. McCall	Huntingdon.
J. W. McCall	Huntingdon.
W. M. Wright, <i>President</i>	Huntingdon.

CHESTER COUNTY.

Jno. W. Baird	Henderson.
Jas. R. Carroll, <i>President</i>	Henderson.
Isham E. Perkins, <i>Secretary</i>	Henderson.
Isham W. Perkins	Henderson.

CROCKETT COUNTY.

S. D. Booth	Maury City.
H. P. Conley	Alamo.
D. J. Conyers	Goodwin.
H. W. Cook	Alamo.
J. L. Fuller	Humboldt.
J. H. Harris	Bells.
F. P. Hess	Bells.
N. I. Hess	Bells.
C. T. Love	Alamo.
S. E. McDonald, <i>Secretary</i>	Bells.
J. H. Nunn, <i>President</i>	Chestnut Bluff.
M. E. O'Neal	R. F.-D. 2, Bells.
J. L. Powell	Friendship.
W. T. Redmond	Crockett Mills.
D. Reville	Maury City.
J. F. Sanders	Crockett Mills.
W. G. Spence	Chestnut Bluff.
T. F. Taylor	R. F. D. 1, Eaton.
A. M. Tullos	Gadsden.

DAVIDSON COUNTY.

J. T. Altman	702 Church Street, Nashville.
C. F. Anderson	139 Eighth Avenue, N., Nashville.
W. B. Anderson	Broad and Twelfth Avenue, N., Nashville.
W. A. Atchison	132 Eighth Avenue, N., Nashville.
Wm. Bailey	Jackson Building, Nashville.
D. F. Banks	Polk and Monroe Streets, Nashville.
R. A. Barr	702 Church Street, Nashville.
J. P. Bates	Willcox Building, Church Street, Nashville.
R. E. Bartlett, Jr.	705 Second Avenue, S., Nashville.
J. W. Bauman	422 Monroe Street, Nashville.
C. Bailey Bell	Waverly Place, Nashville.
Jno. A. Beauchamp	Central Hospital for Insane, Nashville.
R. W. Billington	151 Eighth Avenue, N., Nashville.
W. G. Black	1421 Church Street, Nashville.
D. B. Blake	Eighth Avenue, N., Nashville.
S. M. Bloomstein	Worthington Flats, Nashville.
A. D. Bradford	R. F. D., Bellevue.
James Brew	415½ Church Street, Nashville.
C. S. Briggs	Union and Fifth Avenue, N., Nashville.
Perry Bromberg	Jackson Building, Nashville.
Chas. Brower	Jackson Building, Nashville.
W. A. Bryan	146 Eighth Avenue, N., Nashville.
O. N. Bryan	146 Eighth Avenue, N., Nashville.
H. T. Brooks	1074 Second Avenue, S., Nashville.
C. W. Brown	418 Monroe Street, Nashville.
D. R. Brown	1400 Broadway, Nashville.
C. E. Brush	118 Eighth Avenue, N., Nashville.
M. G. Buckner	Jackson Building, Nashville.
W. E. Buist	213 Eighth Avenue, N., Nashville.
L. E. Burch	150 Eighth Avenue, N., Nashville.
J. L. Butterworth	White's Creek.
Robert Caldwell	Jackson Building, Nashville.
H. T. Campbell	Willcox Building, Nashville.
Van H. Coles	1505 Church Street, Nashville.
A. B. Cooke	Jackson Building, Nashville.
W. E. Cooper	148 Eighth Avenue, N., Nashville.
C. N. Cowden	118 Eighth Avenue, N., Nashville.
S. S. Crockett	Jackson Building, Nashville.
J. P. Crawford	150½ Eighth Avenue, N., Nashville.
J. Y. Crawford	Jackson Building, Nashville.
G. F. Cullom	R. F. D. 4, West Nashville.
M. M. Cullom	Willcox Building, Nashville.
Richard W. Dake	216 Seventh Avenue, N., Nashville.
A. S. Dabney	139 Eighth Avenue, N., Nashville.

E. C. Demoss	209 Seventh Avenue, N., Nashville.
Paul DeWitt	139 Eighth Avenue, N., Nashville.
W. C. Dixon	150 Eighth Avenue, N., Nashville.
R. S. Doak	139 Eighth Avenue, N., Nashville.
A. E. Douglas	Central Hospital for Insane, Nashville.
T. F. Dunn	1016 Eighth Avenue, N., Nashville.
N. G. Evans	148 Eighth Avenue, N., Nashville.
G. P. Edwards	Jackson Building, Nashville.
Duncan Eve	700 Church Street, Nashville.
Duncan Eve, Jr.	700 Church Street, Nashville.
Paul F. Eve	700 Church Street, Nashville.
W. G. Ewing	Jackson Building, Nashville.
R. E. Fort	Seventh Avenue, N., Nashville.
J. H. Frey	Edgar Avenue, Nashville.
A. L. Fuqua	Donelson.
Jno. A. Gaines	Jackson Building, Nashville.
L. George	6 Battle Creek Sanatorium, Nashville.
W. A. George	6 Battle Creek Sanatorium, Nashville.
W. Frank Glenn	First National Bank Building, Nashville.
McP. Glasgow	Worthington Flats, Seventh Avenue, N., Nashville.
J. D. Goodwin	West Nashville.
D. T. Gould	415½ Church Street, Nashville.
L. B. Graddy	Wilcox Building, Nashville.
R. W. Grizzard (deceased)	R. F. D. 24, Edgefield.
R. W. Grizzard, Jr.	209 Seventh Avenue, N., Nashville.
W. D. Haggard	148 Eighth Avenue, N., Nashville.
G. W. Hale	Wilcox Building, Nashville.
Y. W. Haley	623½ Church Street, Nashville.
J. W. Handley	First National Bank Building, Nashville.
J. R. Harwell	119 Seventh Avenue, N., Nashville.
A. W. Harris	Seventh Avenue, N., Nashville.
J. E. Harris	P. O. Box 404, Nashville.
R. A. Harrington	Eighth Avenue and Broadway, Nashville.
F. E. Hayden	1400 Broadway, Nashville.
F. P. Head	West Nashville.
W. E. Hibbitt	Waverly Place, Nashville.
C. L. Hill	Edgar Jones Avenue, Nashville.
A. N. Hollabaugh	801 Fifth Avenue, S., Nashville.
G. W. Hubbard	112 Maple Street, Nashville.
Alberto Hudson	Jackson Building, Nashville.
J. C. Hunt	1227 Fifth Avenue, N., Nashville.
H. B. Hyde	411½ Union Street, Nashville.
V. P. Jackson	Foster and Meridian Streets, Nashville.
J. T. Johnson	411½ Union Street, Nashville.
R. L. Jones	151 Eighth Avenue, N., Nashville.

J. P. Keller	Jackson Building, Nashville.
J. M. King,	136 Eighth Avenue, N., Nashville.
DeLan Kinney	131 Eighth Avenue, Nashville.
W. B. Lee	Jackson Building, Nashville.
N. C. Leonard	140 Eighth Avenue, N., Nashville.
William Litterer	Vanderbilt Medical College, Nashville.
W. M. McCabe	151 Eighth Avenue, N., Nashville.
Wm. E. McCampbell	Sixth and Woodland Streets, Nashville.
E. S. McIlvain	801 Eighth Avenue, S., Nashville.
M. C. McGannon	118 Eighth Avenue, N., Nashville.
J. Wesley Maddin, Jr.	169 Fourth Avenue, N., Nashville.
Thos. L. Maddin (deceased)	169 Fourth Avenue, N., Nashville.
Lillian E. Magan	Madison.
Harrington Marr	Mill Block, Church Street, Nashville.
Joe F. Meadors	First National Bank Building, Nashville.
J. P. Miller	207 Eighth Avenue, N., Nashville.
H. W. Morgan	211 6th Avenue, N., Nashville.
J. W. Moore	Worthington Flats, Seventh Avenue, N., Nashville.
W. J. Morrison	717½ Church Street, Nashville.
P. G. Morrissey	917 Twelfth Avenue, S., Nashville.
D. R. Neil	Jackson Building, Nashville.
A. G. Nichol	Jackson Building, Nashville.
W. J. O'Callahan	Postoffice, Nashville.
O. C. Omohundro	Broadway and Eighth Avenue, N., Nashville.
John Overton	City Hospital, Nashville.
Hable Padgett	139 Eighth Avenue, N., Nashville.
D. R. Pickens	209 Seventh Avenue, N., Nashville.
J. D. Plunket	701½ Church Street, Nashville.
T. G. Pollard	727 Fourth Avenue, S., Nashville.
Jas. B. Powell	R. F. D. 1, Nashville.
Geo. H. Price	146 Eighth Avenue, N., Nashville.
E. E. Reisman	City Hospital, Nashville.
Deering J. Roberts	208 6th Ave., N., Nashville.
C. A. Robertson	N. Spruce Street, Nashville.
A. L. Sharber	140 Eighth Avenue, N., Nashville.
E. M. Sanders	148 Eighth Avenue, N., Nashville.
G. C. Savage	139 Eighth Avenue, N., Nashville.
T. G. Shannon	Woodland and Fourth Streets, Nashville.
W. R. Sifford	First National Bank Building, Nashville.
Larkin Smith	131 Eighth Avenue, N., Nashville.
James B. Stephens	Polk Avenue, Nashville.
Jno. Bunyan Stephens	152 Eighth Avenue, N., Nashville.
Jno. W. Stevens	R. F. D. 1, Nashville.
Reginald Stonestreet	Willcox Building, Nashville.
C. C. Sullivan	152 Eighth Avenue, N., Nashville.

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W. D. Sumpter	131 Eighth Avenue, N., Nashville.
W. H. Tankersley	Waverly Place, Nashville.
S. R. Teachout	702 Church Street, Nashville.
H. M. Tigert, <i>Secretary</i>	Worthington Flats, Nashville.
A. M. Trawick	210 Sixth Avenue, N., Nashville.
G. C. Trawick	210 Sixth Avenue, N., Nashville.
R. O. Tucker	140 Eighth Avenue, N., Nashville.
F. A. Washburn	R. F. D. —, Nashville.
Thomas Weaver	131 Eighth Avenue, N., Nashville.
Olin West	Worthington Flats, Nashville.
Geo. R. White	24 Bridge Avenue, Nashville.
Gordon White	610½ Church Street, Nashville.
O. H. Wilson	Worthington Flats, Nashville.
Jno. A. Witherspoon	150 Eighth Avenue, N., Nashville.
W. H. Witt, <i>President</i>	Worthington Flats, Seventh Ave., N., Nashville.
E. G. Wood	133 Eighth Avenue, N., Nashville.
T. Hilliard Wood	First National Bank Building, Nashville.

DEKALB COUNTY.

M. J. Durham	R. F. D. 2, Silver Point.
C. A. Loring	R. F. D. 1, Smithville.
W. W. Parker, <i>President</i>	Smithville.
W. B. Parker, <i>Secretary</i>	Smithville.
J. J. Potter	Smithville.

DICKSON COUNTY.

A. H. Abernathy, <i>President</i>	Dickson.
J. A. Castleman	Charlotte.
J. C. Flowers, <i>Secretary</i>	Dickson.
H. C. Guerin	Dickson.
C. M. Lovell	Dickson.
O. N. Moody	Tennessee City.
Wm. S. Scott	Dickson.
James A. Venable	White Bluff.
B. F. Walker	Dickson.
W. W. Walker	Dickson.

DYER COUNTY.

J. D. Brewer	Newbern.
R. A. Burke, <i>President</i>	Dyersburg.
E. O. Cherry	Newbern.
J. R. Craig	Dyersburg.
O. Dulaney	Dyersburg.
J. A. Ferguson	Dyersburg.
J. A. Fowlkes	¶ J. A. Ferguson, Dyersburg.

V. B. Greathouse	¢ J. A. Ferguson, Dyersburg.
J. H. Green	Trimble.
L. B. Hall	R. F. D., Newbern.
Edward T. Haskins	Newbern.
J. T. Hornbrook	Dyersburg.
A. H. Moody	Dyersburg.
C. T. Nash	¢ J. A. Ferguson, Dyersburg.
Eldred L. Rawls	Dyersburg.
Isaac N. Rawls	Finley.
J. D. Richardson	Fowlkes.
W. O. Sullivan	Newbern.
C. B. A. Turner	R. F. D., Dyersburg.
Nicholas Stubbs Walker	Dyersburg.
Thomas J. Walker	Dyersburg.
W. P. Watson, <i>Secretary</i>	Dyersburg.
Joseph A. Wynne	Newbern.

FAYETTE COUNTY.

J. A. Albright	Somerville.
L. D. McAuley, <i>President</i>	Oakland.
C. W. Robertson	Somerville.
T. B. Yancey, Jr.	Somerville.

GIBSON COUNTY.

J. E. Adkisson	Medina.
W. J. Barker	Brazil.
B. T. Bennett	Trenton.
A. J. Bryant	Bedford.
B. D. Caldwell	Milan.
A. T. Clopton	Milan.
T. N. Cochran	Trenton.
Geo. W. Dodd	Eaton.
J. T. Faucett	Trenton.
T. J. Happel	Trenton.
T. E. Howard	Trenton.
R. H. Hunt	Gibson.
W. T. Joiner	Bedford.
J. N. Koffman	Trenton.
E. C. Matthews	Fruitland.
J. E. McKenzie	Bedford.
J. S. McKenzie	Bedford.
W. C. McRee, <i>Secretary</i>	Trenton.
W. L. Medling	Dyer.
J. C. Moore	Trenton.
C. R. Morrison	Rutherford.

J. T. Nethery	Yorkville.
R. L. Newman	Dyer.
G. W. Oliver	Medina.
B. S. Penn	Humboldt.
G. W. Penn	Humboldt.
J. H. Preston, <i>President</i>	Humboldt.
J. H. Rozzel	Gibson.
W. T. Swink	Milan.
Sid Thompson	Humboldt.
A. E. Turner	Neboville.
C. E. Tyree	Trenton.
D. A. Walker	Trenton.
F. E. Wyatt	Yorkville.

GILES COUNTY.

Chas. Alfred Abernathy, <i>Secretary</i>	Pulaski.
Shields Abernathy	Pulaski.
Wm. D. Abernathy	Pulaski.
Alexander M. Allen	Buford.
Robt. E. Aymett	Pisgah.
Jno. E. Baugh	Elkton.
W. E. Black	Minor Hill.
J. K. P. Blackburn	Pulaski.
Geo. D. Butler	Pulaski.
W. H. Cole	Minor Hill.
W. F. Copeland	Campbellsville.
Allen W. Deane	Brick Church.
Jno. G. Fitzgerald	Campbellsville.
Eunice C. Freeman	Campbellsville.
G. C. Grimes	Bodenham.
Jno. S. Harris	Minor Hill.
Robert N. Herbert	Aspen Hill.
A. J. Lancaster	Pisgah.
Geo. W. Lancaster	Pisgah.
J. A. LaRue	Pulaski.
J. P. May	Elkton.
R. B. Rupe (deceased)	Weakley.
E. R. Sumpter, <i>President</i>	Pulaski.
A. C. Waters	Bodenham.
Frank B. Wilson	Elkton.
Wm. E. Wilson	Pulaski.
B. H. Woodard	Elkton.

GREENE COUNTY.

G. N. Bailey	Baileyton.
J. B. Bell	R. F. D. 2, Greeneville.

M. A. Blanton	R. F. D. 1, Baileyton.
Frank C. Britton	R. F. D. 9, Greeneville.
I. B. Brown	Mosheim.
J. W. Cloyd	Mosheim.
Hubert P. Doak	Tusculum.
M. P. Everhart	Greeneville.
C. P. Fox, <i>Secretary</i>	Greeneville.
W. H. Hawkins	Greeneville.
George S. Hays	Jeraldstown.
Robert O. Huffaker, <i>President</i>	Chucky City.
C. W. McCollum	Midway.
Jno. C. Marshall	R. F. D., Chucky City.
E. M. Myers	Bull's Gap.
H. H. Ruble	R. F. D., Greeneville.
C. W. Starnes	Greeneville.
Horace M. Taylor	R. F. D., Greeneville.
Wm. B. Taylor	Greeneville.
James S. J. Wilhoit	R. F. D., Afton.
S. W. Woodyard	Greeneville.
T. H. Woolsey	R. F. D., Greeneville.

HAMBLEN COUNTY.

T. E. Bales	Morristown.
J. F. Campbell	Morristown.
H. M. Cass	Morristown.
J. B. F. Dice	Morristown.
P. L. Henderson	Morristown.
W. E. Howell	Morristown.
J. J. Manard	R. F. D., Morristown.
H. G. Pangle	Russellville.
F. F. Painter, <i>Secretary</i>	Morristown.
W. G. Ruble, <i>President</i>	Morristown.
D. E. Shields	Morristown.
T. L. Smith	Morristown.
R. S. Tidwell	Tate's Springs.
O. R. Tomlinson	Tate's Springs.
B. C. Weesner	Morristown.
J. O. Wood	Morristown.

HAMILTON COUNTY.

T. E. Abernathy	Bates Block, Chattanooga.
Y. L. Abernathy	Hill City.
E. B. Anderson	7 W. Eighth Street, Chattanooga.
E. C. Anderson	726 Market Street, Chattanooga.
W. E. Anderson	Hamilton National Bank, Chattanooga.

W. A. Applegate	13 Penn. Avenue, Washington, D. C.
James H. Atlee, <i>Secretary</i>	Loveman Building, Chattanooga.
W. Banks	313 Chamberlain Avenue, Chattanooga.
D. N. Barrett	402 Washington Arcade, Detroit, Mich.
H. K. Bearden	Sherman Heights, Chattanooga.
H. Berlin	Chattanooga.
Oscar L. Blackwell	Whorley.
W. G. Bogart	518 Georgia Avenue, Chattanooga.
W. M. Bogart	Hill City.
A. W. Boyd	Loveman Building, Chattanooga.
E. H. Byrd	Sherman Heights.
C. A. Cobleigh	110 McCallie Avenue, Chattanooga.
R. R. Cornell	West Ninth Street, Chattanooga.
T. H. Davis	Chattanooga.
K. D. Davis	Wiehl Building, Chattanooga.
Byron A. Deakins	Chattanooga.
William Dietrich	711½ Market Street, Chattanooga.
W. A. Duncan	826 Market Street, Chattanooga.
J. S. Dye	5 East Eighth Avenue, Chattanooga.
T. N. Eblin	(James County) Tyner.
G. M. Ellis	826 Market Street, Chattanooga.
Samuel C. Ellis (deceased)	711½ Market Street, Chattanooga.
Stephen A. Fowler	1100 Whiteside Street, Chattanooga.
J. J. Gee	Chattanooga.
J. A. Gentry	Times Building, Chattanooga.
Vaulx Gibbs	831½ Market Street, Chattanooga.
C. Gertrude Graham	108 East Seventh Street, Chattanooga.
J. E. Green	Montgomery Avenue, Chattanooga.
C. H. Gurney	East End, Chattanooga.
G. P. Haymore	826 Market Street, Chattaugo.
O. M. Hayward	Chattanooga.
J. McC. Hogshead	707 Georgia Avenue, Chattanooga.
W. T. Hope	101½ E. Eighth Street, Chattanooga.
Cooper Holtzclaw	213 East Eighth Street, Chattanooga.
J. Webster Horton	Chattanooga.
O. G. Hughes	(James County) Ooltewah.
Ebb C. Johnston	213 East Eighth Street, Chattanooga.
Joseph W. Johnson	5 East Eighth Street, Chattanooga.
J. Lanski	East Eighth Street, Chattanooga.
H. P. Larimore	Bates Block, Chattanooga.
Jno. B. McGhee	222 East Montgomery Avenue, Chattanooga.
John W. McQuillan	Chattanooga.
W. C. Marshall	Vine and Lindsey Streets, Chattanooga.
Nathaniel J. Minter	276½ East Montgomery Avenue, Chattanooga.
Dowling Morris	Bank Building, Chattanooga.

A. A. Nefe	Lookout Mountain.
E. T. Newell	Chattanooga.
W. L. Nolen	707 Georgia Avenue, Chattanooga.
A. P. Noyes	"The Elizabeth," Chattanooga.
J. E. Pittman	Montgomery Avenue, Chattanooga.
J. R. Rathmell	5 East Ninth Street, Chattanooga.
J. M. Richards	Sale Creek.
J. S. Shoff	11½ East Ninth Street, Chattanooga.
P. D. Sims	708 Walnut Street, Chattanooga.
F. B. Stapp	9½ East Eighth Street, Chattanooga.
Jno. B. Steele	9½ E. Eighth Street, Chattanooga.
N. C. Steele	Loveman Building, Chattanooga.
F. T. Smith	826 Market Street, Chattanooga.
M. H. Stuart	Chattanooga.
J. Q. Sutton	708 Market Street, Chattanooga.
R. H. Tatum	110 East Seventh Street, Chattanooga.
Robt. N. Taylor	814½ Market Street, Chattanooga.
B. F. Travis	Loveman Building, Chattanooga.
N. May Waite	114½ East Seventh Street, Chattanooga.
Thos. D. Walker	Soddy.
Raymond Wallace	Loveman Building, Chattanooga.
J. M. Webb	(James County) Ooltewah.
B. S. Wert	5 East Eighth Street, Chattanooga.
Geo. R. West, <i>President</i>	10 West Eighth Street, Chattanooga.
G. Victor Williams	240 East Montgomery Avenue, Chattanooga.
H. B. Wilson	726 Market Street, Chattanooga.
E. B. Wise	707 Georgia Avenue, Chattanooga.
Frank L. Wood	222½ Montgomery Avenue, Chattanooga.
J. S. B. Woolford	313 Chamberlain Avenue, Chattanooga.
A. B. Woolner	5 East Ninth Street, Chattanooga.
O. B. Wunschow	820 Market Street, Chattanooga.
S. I. Yarnell	Loveman Building, Chattanooga.
T. J. Zeigler	Avondale.

HARDEMAN COUNTY.

G. W. Crice	Whiteville.
Geo. B. Curry	Toone.
J. M. Curry	Toone.
Joseph Clifton	Hickory Valley.
C. M. Cottingham (deceased)	Teague.
H. E. Dorris	Bolivar.
W. L. Goddard	Saulsbury.
J. C. Johnston	Grand Junction.
H. M. Milstead	Cranesville.
J. J. Neely	Bolivar.

J. D. Sasser, Sr., *President* Middleton.
 Robt. W. Tate, *Secretary* Bolivar.

HAYWOOD COUNTY.

Jno. T. Allen, *President* Washington Street, Brownsville.
 L. W. Culbreath Stanton.
 R. C. Dickinson Ged.
 Jos. L. Edwards, *Secretary* Lafayette Street, Brownsville.
 L. F. Ferguson Nut Bush.
 Jas. G. Haywood West Main Street, Brownsville.
 F. C. Heard R. F. D., Brownsville.
 H. Prince Hudson Brownsville.
 Guy W. Musgraves R. F. D., Brownsville.
 Joe R. Nelson Eureka-ton.
 J. Conyers Norvelle Hanley.
 J. S. Patton Brownsville.
 J. S. Rawlins Dancyville.
 Jno. H. Sevier Washington Street, Brownsville.
 Joe T. Seymore Eureka-ton.
 G. R. Thomas Jones Station.
 W. H. Whitelaw Brownsville.
 J. B. Wilkinson Stanton.
 G. C. Wright Rein.

HENDERSON COUNTY.

Jas. M. Arnold Lexington.
 C. E. Bolen Wildersville.
 I. Howell Darden.
 W. F. Huntsman, *President* Juno.
 C. H. Johnston Lexington.
 W. B. Keeton Scott's Hill.
 A. L. Waller Juno.
 W. T. Watson, *Secretary* Lexington.

HENRY COUNTY.

B. F. Abernathy Danville.
 G. T. Abernathy Paris.
 R. A. Grainger Paris.
 E. G. Maxwell Cottage Grove.
 I. A. McSwain Paris.
 J. H. McSwain, *Secretary* Paris.
 A. F. Paschall Crossland, Ky.
 R. J. Perry R. F. D., Springville.
 Chas. W. Rodgers Como.

HICKMAN COUNTY.

J. A. Batton	Coble.
Jno. S. Beasley, <i>Secretary</i>	Centreville.
R. P. Beasley	Coble.
R. M. Church	Aetna.
J. D. Cooper	Sun Rise.
D. W. Flowers	Little Lot.
A. Norris	Centreville.
G. W. Springer	Hohenwald.
C. V. Stephenson	Centreville.
Kenneth I. Sutton, <i>President</i>	Centreville.
J. W. Thompson	Centreville.
T. D. Thompson	Pinewood.
R. P. Wilson	Centreville.
J. E. Woods	Kimmins.

HUMPHREYS COUNTY.

D. C. K. Binkley	Hustburg.
J. T. Cooley, <i>Secretary</i>	R. F. D. 3, Waverly.
W. H. Daniel	McEwen.
H. F. Gould	Box.
W. R. Horner	Clydeton.
W. W. Slayden, <i>President</i>	Waverly.
J. N. Smith	Cuba Landing.
Jno. A. Sugg	McEwen.
W. J. Sugg	Dickson.
J. J. Teas	Waverly.

JEFFERSON COUNTY.

J. C. Anderson	R. F. D. 1, Oak Grove.
B. F. Brown	Jefferson City.
J. M. Caldwell	Jefferson City.
B. E. Cline	White Pine.
Phillip L. Cline	White Pine.
W. S. Cooper	& B. M. Tittsworth, Shady Grove.
N. M. Dukes, <i>President</i>	Strawberry Plains.
S. W. Fain	Dandridge.
J. I. Huggins	Oak Grove.
W. S. Roberts	Talbots.
W. L. Tadlock	Talbots.
H. L. Tar	Jefferson City.
P. A. Tinsley	Dandridge.
B. M. Tittsworth, <i>Secretary</i>	Shady Grove.
I. M. Tittsworth	Jefferson City.
J. H. Walker	White Pine.

KNOX COUNTY.

Samuel D. Acuff	1314 N. Central Street, Knoxville.
N. B. Adams	(Blount County) Townsend.
W. H. Armstrong	Rogersville.
W. S. Austin	423 W. Church Street, Knoxville.
George W. Booker	Mooresburg.
Benjamin Drake Bosworth	403 Church Avenue, Knoxville.
J. P. Blankenship	Maryville.
John M. Boyd	202 W. Church Avenue, Knoxville.
Samuel B. Boyd	202 W. Church Avenue, Knoxville.
Jno. R. Brown	(Lyons View) Bearden.
Wm. Bowen	French & Roberts Building, Knoxville.
Michael Campbell	(Lyons View) Bearden.
Claudius M. Capps	Deaderick Building, Knoxville.
C. J. Carmichael	419 W. Church Avenue, Knoxville.
J. W. Carmichael	419 W. Church Avenue, Knoxville.
S. F. Casenbury	McTownley Building, Knoxville.
Benjamin B. Cates	508 W. Church Avenue, Knoxville.
W. R. Cochrane	721 Walnut Street, Knoxville.
H. P. Coile	Van Deenter Building, Knoxville.
M. M. Copenhaver	Lonsdale Street, Knoxville.
Wm. Cusick	McNutt Building, Knoxville.
V. C. Dail	Arnstein Building, Knoxville.
Charles Huff Davis	Empire Building, Knoxville.
Chalmers Deaderick	501 W. Church Avenue, Knoxville.
C. C. DeArmond	Empire Building, Knoxville.
Wm. Delpuech	434 Atkin Street, Knoxville.
C. M. Drake	410 W. Church Avenue, Knoxville.
J. W. Dinnon	Knoxville.
J. W. Drenen	Riverdale.
J. J. Ellis	Empire Building, Knoxville.
T. N. Ellis	Empire Building, Knoxville.
C. B. Evans	Lonsdale.
T. F. Fitzgerald	Knoxville.
A. E. Foster	Knoxville.
J. I. Garrard	Knoxville.
H. E. Goetz	Deaderick Building, Knoxville.
W. A. Greer	Deaderick Building, Knoxville.
E. A. Guynes	French & Roberts Building, Knoxville.
F. J. Hackney	413 Wall Avenue, Knoxville.
S. H. Hodge	611 Walnut Street, Knoxville.
S. L. Jones	Deaderick Building, Knoxville.
T. ap. R. Jones	612 Walnut Street, Knoxville.
J. B. Johnson	City Hospital, Knoxville.
W. F. Kabler	605 Walnut Street, Knoxville.

H. J. Kelso	425 W. Church Avenue, Knoxville.
J. M. Kennedy	615 W. Church Avenue, Knoxville.
A. G. Kern	607 Walnut Street, Knoxville.
J. M. Kennedy	615 W. Church Avenue, Knoxville.
A. G. Kyle	Knoxville.
R. B. Layman	Whitfield Flats, Knoxville.
Wm. R. Lockett	316 N. Gay Street, Knoxville.
C. E. Lones	504 Asylum Street, Knoxville.
Walter Luttrell	McTownley Building, Knoxville.
W. A. McCallie	Whitfield Flats, Knoxville.
H. H. McCampbell, <i>President</i>	614 Walnut Street, Knoxville.
H. T. McClain	Mooresburg.
R. W. McCown	405 W. Church Avenue, Knoxville.
C. P. McNabb	904 S. Gay Street, Knoxville.
Jno. F. Massey, <i>Secretary</i>	Empire Building, Knoxville.
J. E. Miller	Rogersville.
S. M. Miller	209 W. Church Avenue, Knoxville.
S. R. Miller	406 W. Church Avenue, Knoxville.
S. A. Milligan	Empire Building, Knoxville.
C. F. Mooney	705 Prince Street, Knoxville.
J. H. Morton	326 W. Park Avenue, Knoxville.
W. S. Nash	611 Walnut Street, Knoxville.
R. H. Newman	406 W. Church Avenue, Knoxville.
A. W. Ogle	306 Commerce Street, Knoxville.
W. S. Ogle	Empire Building, Knoxville.
R. P. Oppenheimer	417 Church Avenue, Knoxville.
J. B. Parker	Inskip.
C. W. Rain	Empire Building, Knoxville.
W. D. Richmond	Empire Building, Knoxville.
C. E. Ristine	McNutt Building, Knoxville.
A. L. Rule	405 W. Church Avenue, Knoxville.
J. A. Sisk	Empire Building, Knoxville.
Henry A. Smith	414 Wall Avenue, Knoxville.
J. P. Tillery	Watauga Building, Knoxville.
W. K. Vance	Bristol.
W. L. Wallace	1021 N. Broad Street, Knoxville.
J. Q. A. West	Arnstein Building, Knoxville.
W. J. West	Empire Building, Knoxville.
W. H. L. White	Young Building, Knoxville.
Dora L. Wilder	Boyd's Ferry Road, Knoxville.
D. H. Williams	613 Walnut Street, Knoxville.
J. H. Wilkerson	Gay and Wall Streets, Knoxville.
B. F. Young	Young Building, Knoxville.
E. R. Zemp	617 Walnut Street, Knoxville.

LAKE COUNTY.

Jno. D. Alexander	Cronansville.
W. S. Alexander	Ridgely.
J. F. Griffin	Tiptonville.
R. B. Griffin	Ridgely.
R. W. Griffin	Tiptonville.
R. E. Hallen	Reelfoot.
J. L. Hutchinson, <i>Secretary</i>	Tiptonville.
E. T. Kelty	Bessie.
Jno. B. Love	Tiptonville.
A. P. Smith	Ridgely.
J. M. Wright, <i>President</i>	Tiptonville.

LAUDERDALE COUNTY.

Joe B. Lackey, <i>Secretary</i>	Ripley.
J. H. Lackey	Ripley.
W. K. Lackey	Ripley.
J. R. Lewis	Ripley.
G. A. Lusk	Ripley.
W. D. Miller	Ripley.
C. R. Mulherron	R. F. D. 5, Ripley.
G. G. Mulherron, <i>President</i>	R. F. D. 5, Ripley.
J. A. Porter	Ripley.
J. W. Sanford	Ripley.
W. C. Sanford	Henning.
G. T. Scott	R. F. D. 1, Curve.
W. H. Tucker, Jr.	R. F. D. 3, Halls.

LINCOLN COUNTY.

J. M. Anderson	Fayetteville.
B. B. Brock, <i>President</i>	Blanche.
Wm. F. Cannon	Belleville.
J. M. Cullum, <i>Secretary</i>	Fayetteville.
Joseph F. Farrar	Molino.
E. C. Forbes	Blanche.
L. H. Gilliam	Kelso.
Joseph T. Graham	Booneville.
E. F. Holland	Mulberry.
Will S. Joplin	Petersburg.
F. S. McRady	Petersburg.
J. M. McWilliams	Fayetteville.
Boone E. Noblitt	Fayetteville.
P. T. Rhodes	Howell.
Leon Sheddan	Fayetteville.
W. P. Summers	Molino.
A. L. Yearwood	Fayetteville.

LOUDON COUNTY.

G. M. Burdette .....	.Lenoir City.
J. G. Eblen, <i>Secretary</i> .....	.Lenoir City.
W. T. Foute .....	.Lenoir City.
A. J. Gambill	R. F. D., Concord.
G. M. Hall, <i>President</i> .....	.Lenoir City.
J. J. Harrison	Loudon.
T. J. Hickman .....	.Lenoir City.
J. T. Leiper .....	.Lenoir City.
W. D. Padgett .....	.Lenoir City.
R. M. Tillery	Concord.

MADISON COUNTY.

J. T. Barbee	Jackson.
J. A. Blackmon	Jackson.
Robt. H. Cantrell	Jackson.
J. A. Crook	Jackson.
J. L. Crook	Jackson.
A. B. Dancy	Jackson.
Clifford C. Drake	Hunt.
W. C. Duckworth	Jackson.
R. L. Greer	Norwood.
J. W. Gresham	Jackson.
F. B. Hamilton, Sr. (deceased)	Jackson.
F. B. Hamilton, Jr.	Jackson.
H. Hawkins	Jackson.
J. T. Herron	Jackson.
J. D. Hopper	R. F. D. 2, Jackson.
D. A. Hudson	Melesus.
Horace L. Jones	R. F. D. 1, Jackson.
J. T. Jones	Jackson.
Geo. Lacy	Medon.
P. B. Lusk	Jackson.
A. McCoy	Jackson.
E. K. McNeil, <i>Secretary</i>	Jackson.
Robt. B. Nelson	Jackson.
J. T. Raines, Sr.	Malesus.
J. T. Raines, Jr.	Malesus.
W. F. Rochelle, <i>President</i>	Jackson.
M. E. Siler	Mercer.
Jas. M. Trout	Jackson.
L. W. Webb	Carroll Station.
G. L. Williamson	Jackson.

MARION COUNTY.

H. L. Fancher	Orme.
C. L. Hackworth, <i>Secretary</i>	South Pittsburg.

MARSHALL COUNTY.

R. G. Baxter	Caney Springs.
J. C. Crunk	Belfast.
C. C. Hardison	Lewisburg.
J. A. Hardison	Lewisburg.
S. T. Hardison	Lewisburg.
J. W. Leonard	Cornersville.
T. R. Logan	Farmington.
C. D. Moffitt	Lewisburg.
L. L. Murray	Estella.
W. C. Ransom	Farmington.
T. E. Reid, <i>Secretary</i>	Lewisburg.
J. R. Rickman, <i>President</i>	Chapel Hill.
W. E. Vaden	Rich Creek.
Garrett White	Chapel Hill.
C. W. Womack	Lewisburg.

MAURY COUNTY.

H. O. Anderson	Williamsport
M. A. Beasley	Hampshire.
P. D. Biddle	Columbia.
T. B. Brown, <i>President</i>	R. F. D. 3, Columbia.
C. Y. Clark	Mt. Pleasant.
Edward Everett Collins	Columbia.
Maximilian Montrose Cook, <i>Secretary</i>	Santa Fe.
W. F. Copeland	Columbia.
James Andrew Edwards	Columbia.
Chas. Alfred Forgey	Columbia.
C. O. Fowler	Spring Hill.
J. O. Hardin (Veteran)	Spring Hill.
Wm. Benjamin Harrison (Veteran)	Columbia.
John Lee Haywood	R. F. D. 23, Carter's Creek.
Joseph Spencer Hill	Mt. Pleasant.
Wm. Hunter Kittrell	Mt. Pleasant.
Russell Simpson Perry	R. F. D. 7, Columbia.
Robert Pillow	Columbia.
Otey James Porter	Columbia.
Leonard Eugene Ragsdale	Williamsport.
E. A. Timmons	Columbia.
Horace Ezell Thomas	R. F. D. 7, Columbia.
Walter Reeves Webb	Hampshire.

J. H. Wilkes (Veteran)	Columbia.
James Grief Williamson	Columbia.

MONROE COUNTY.

W. B. Bagwell	Madisonville.
Franklin K. Berry	Sweetwater.
Geo. O. Bicknell	Etowah.
R. H. Brock	Sweetwater.
James E. Davis, <i>Secretary</i>	Sweetwater.
Jos. A. Harden	Sweetwater.
S. S. Kittrell	Madisonville.
W. W. Leonard	(McMinn County) Mt. Vernon.
Wm. A. McClain, <i>President</i>	Sweetwater.
Jos. A. McCollum	Tariffville.
S. N. Penland	Madisonville.
T. M. Roberts	Sweetwater.
J. A. Saliba	Athens.
A. D. Scruggs	Sweetwater.

MONTGOMERY COUNTY.

J. W. Brandau	Clarksville.
Robt. Ferguson	Peacher's Mills.
Frank Fessy	Palmyra.
M. L. Hughes	Clarksville.
R. E. Hunt	St. Bethlehem.
H. P. Lynn	Cumberland City.
R. B. Macon	Clarksville.
R. J. McFall, <i>President</i>	Cumberland City.
H. C. McGregor	New Providence.
T. H. Marable	Clarksville.
J. W. Meacham	Clarksville.
L. L. Neblett	Cumberland Furnace.
S. E. Neblett	South Side.
F. J. Runyon	Clarksville.
J. D. Slayden	Clarksville.
Geo. E. Vaughan, <i>Secretary</i>	Clarksville.

OBION COUNTY.

M. A. Blanton, <i>Secretary</i>	Union City.
H. T. Butler	Union City.
S. E. Chandler	Minnick.
J. F. Darnall	Union City.
T. D. Edwards	Union City.
J. B. Havener	Troy.
J. B. Hibbitts	Union City.

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J. A. Howard	McConnell.
V. J. Jernigan	Obion.
P. N. Matlock, <i>President</i>	Mason Hall.
D. M. Pearce	Union City.
J. A. Phelps	Jordan, Ky.
P. W. Prather	Woodland Mills.
W. F. Roberts	Troy.
J. B. Sharp	Obion.
F. W. Watson	Union City.
J. J. Wells	Glass.
E. H. White	Rives.
J. L. Wright	Elbridge.

POLK COUNTY.

E. M. Akins	McCoy's.
W. J. Copeland	Fitzerton.
R. L. Hyder, <i>President</i>	Isabella.
F. M. Kinsey	Ducktown.
L. E. Kinsey	Ducktown.
A. W. Lewis, <i>Secretary</i>	McCay's.
K. E. Rogers	Ducktown.

PUTNAM COUNTY.

H. C. Curtis	Algood.
Sam Denton	Buffalo Valley.
J. F. Dyer	Cookeville.
L. D. J. Ensor, <i>Secretary</i>	Cookeville.
W. S. Farmer	Gentry.
W. A. Howard	Algood.
C. P. Martin	Cookeville.
H. C. Martin	Cookeville.
J. B. S. Martin	Cookeville.
J. T. Moore	Algood.
W. C. Officer	Monterey.
R. L. Ray, <i>President</i>	Monterey.
W. E. Sypert	Baxter.
Z. L. Shipley	Cookeville.
J. S. Trapp	R. F. D. 1, Taylors.

RHEA COUNTY.

James Robert Gillespie	Dayton.
Wm. Payne McDonald, <i>Secretary</i>	Spring City.
Roscoe Clement Miller	Evensville.
Reece K. Watkins	Spring City.

ROANE COUNTY.

Jno. M. Clack	Rockwood.
W. S. Clack	Rockwood.
E. F. Dodson	Harriman.
Jas. S. Fritts	R. F. D. 2, Harriman.
J. B. Goodwin	R. F. D. 1, Harriman.
G. C. G. Givan, <i>Secretary</i>	Harriman.
C. W. Green	Harriman.
W. W. Hill	Cardiff.
R. M. Kimbrough	Harriman.
Eugene S. Phillips	Rockwood.
John Roberts, <i>President</i>	Kingston.
Jas. A. Sewell	Rockwood.
Joseph J. Waller	Oliver Springs.
J. C. Wilson	Rockwood.
G. P. Zirkle	Kingston.

ROBERTSON COUNTY.

M. L. Bradley	Sadlersville.
T. L. B. Brown	R. F. D. 1, White House.
J. R. Connell	Adams Station.
J. J. Covington	Cross Plains.
D. E. Davis	Springfield.
W. B. Dye	Sadlersville.
Benj. F. Fyke, <i>Secretary</i>	Springfield.
J. R. Green	Springfield.
T. H. Hassell	Springfield.
E. S. Hawkins	Cedar Hill.
T. L. Johnson	Greenbrier.
Guy R. Jones	Orlinda.
R. L. Matthews	Springfield.
Amon C. Moore	Cross Plains.
J. E. Moore	Springfield.
Wallace W. Porter	Springfield.
D. W. Ramer	R. F. D. 3, Springfield.
J. H. Reeves	R. F. D. 1, Springfield.
Wm. Royster	Turnersville.
Miles Scott	Barren Plains.
B. B. Sory	Cedar Hill.
L. Frank Sory	Adams Station.
L. B. Walton	R. F. D. 1, Whitehouse.
Martin A. Walton	R. F. D. 1, Whitehouse.
I. E. Wells	R. F. D. 6, Springfield.
Francis M. Woodard	Springfield.
W. H. Willett, <i>President</i>	Adams Station.

W. W. Winters	Greenbrier.
J. B. Woodruff	Lamont.

RUTHERFORD COUNTY.

William Caldwell Bilbro	Murfreesboro.
George Washington Crosthwaite	Florence.
Solon S. Duggan	Eagleville.
Vernon Kingston Earthman	Murfreesboro.
W. J. Engles	Smyrna.
Samuel Carver Grigg	Murfreesboro.
Joseph Davis Hall	R. F. D. 5, Murfreesboro.
DeWitt Clinton Huff	R. F. D. 1, Christiana.
Andrew Jackson Jamison	Murfreesboro.
Enoch Hunt Jones	Murfreesboro.
James Brickell Murfree (Veteran)	Murfreesboro
Rufus Pitts, <i>Secretary</i>	R. F. D. 3, Murfreesboro.
Robt. William Read	R. F. D. 2, Murfreesboro.
Harry Clayton Rees	Murfreesboro.
John Joshua Rucker, <i>President</i>	R. F. D. 1, Murfreesboro.
Sidney Bertrand Smith	Overall.
William Eleazor Youree	Readyville.

SCOTT COUNTY.

A. A. Baird, <i>Secretary</i>	Helenwood.
F. M. Boyatt	Oneida.
H. M. Carr	Glenmary.
Jas. I. Foster	Huntsville.
T. M. McGill	Norma.
Thos. L. Phillips, <i>President</i>	Robbins.
M. E. Thompson	Almy.

SEVIER COUNTY.

W. A. Catlett	Sevierville.
S. W. Flanigin	R. F. D. 4, Sevierville.
J. R. Huffaker	R. F. D. 1, Sevierville.
R. J. Ingle, <i>Secretary</i>	Sevierville.
A. J. Isham	Sevierville.
Z. D. Massey	Sevierville.
P. A. Ogle	Roddy.
G. E. Sharp	Trundle's X Roads.
P. E. Walker, <i>President</i>	Sevierville.

SHELBY COUNTY.

W. S. Anderson	Memphis Trust Building, Memphis.
J. C. Ayers	58 Cox Avenue, Memphis.

W. H. Baldwin	Station G, Memphis.
J. L. Barton	78 S. Main Street, Memphis.
J. L. Beauchamp	150 Court Avenue, Memphis.
C. M. Beck	17 S. McLean Boulevard, Memphis.
W. M. Bigham	R. F. D. 1, Kerrville.
W. T. Black	Randolph Building, Memphis.
E. C. Blackburn	Randolph Building, Memphis.
B. L. Branch	Collierville.
D. O. Bridgeforth	Tennessee Trust Building, Memphis.
J. D. Bridger	Memphis Trust Building, Memphis.
W. T. Braun	78 N. Main Street, Memphis.
G. G. Buford	Randolph Building Memphis.
Wm. B. Burns	Porter Building, Memphis.
W. C. Campbell	Randolph Building, Memphis.
S. S. Campbell	629 Monroe Street, Memphis.
J. H. Carter	Tennessee Trust Building, Memphis.
W. S. A. Castles	63½ N. Main Street, Memphis.
W. F. Clary	13 S. Main Street, Memphis.
J. C. Clark	Goodwin Institute, Memphis.
J. A. Crisler	Memphis Trust Building, Memphis.
T. J. Crofford	211 N. Third Street, Memphis.
J. R. Crutcher	Tennessee Trust Building, Memphis.
J. A. Currie	41 S. McLean Avenue, Memphis.
A. B. DeLoach	Scimitar Building, Memphis.
Thad. Donohue	205 N. Second Street, Memphis.
B. N. Dunavant	Rogers Building, Memphis.
C. W. Edwards	1014 Mississippi Avenue, Memphis.
E. C. Ellett	Randolph Building, Memphis.
Alex. Erskine, <i>President</i> (Veteran)	Randolph Building, Memphis.
H. B. Everett	Station C, Memphis.
P. M. Farrington	Memphis Trust Building, Memphis.
P. J. Flippin	R. F. D. 1, Brunswick.
Bryce W. Fontaine	Byrd Building, Memphis.
J. E. French	23 N. Cooper Street, Memphis.
M. Goltman	Memphis Trust Building, Memphis.
Frank Graham	Lee Building, Memphis.
Marcus Haase	Memphis Trust Building, Memphis.
D. M. Hall	13 S. Main Street, Memphis.
E. C. Ham	Randolph Building, Memphis.
L. W. Haskell	Randolph Building, Memphis.
W. T. Harvell	Brunswick.
E. E. Haynes	Randolph Building, Memphis.
J. F. Hill	Tennessee Trust Building, Memphis.
B. G. Henning	13 S. Main Street, Memphis.
D. M. Henning	13 S. Main Street, Memphis.

H. B. Jacobson	119 N. Main Street, Memphis.
A. G. Jacobs	Scimitar Building, Memphis.
Heber Jones	Tennessee Trust Building, Memphis.
E. M. Holder	Memphis Trust Building, Memphis.
Kennedy Jones	Tennessee Trust Building, Memphis.
John L. Jelks	Tennessee Trust Building, Memphis.
William Krauss	Randolph Building, Memphis.
Elizabeth C. Kane	11 S. Second Street, Memphis.
H. B. Kincaid	Memphis Trust Building, Memphis.
W. S. Lawrence	Memphis Trust Building, Memphis.
E. K. Leake	Collierville.
A. C. Lewis	Goodwin Institute, Memphis.
Louis Leroy	Byrd Building, Memphis.
J. A. Lipscomb	63½ N. Main Street, Memphis.
Geo. R. Livermore	Tennessee Trust Building, Memphis.
Battle Malone	Rogers Building, Memphis.
F. M. Malone	Capleville.
G. B. Malone	Randolph Building, Memphis.
Robt. Mann	Goodwin Institute, Memphis.
Jno. M. Maury	Memphis Trust Building, Memphis.
R. B. Maury (Veteran)	Memphis Trust Building, Memphis.
O. S. McCown	Memphis Trust Building, Memphis.
J. B. McElroy	Porter Building, Memphis.
J. L. McGehee	Porter Building, Memphis.
Richmond McKinney	Memphis Trust Building, Memphis.
J. L. McLean	Tennessee Trust Building, Memphis.
Geo. W. Meux	Lee Building, Memphis.
L. L. Meyer	Memphis Trust Building, Memphis.
W. T. Michie	Scimitar Building, Memphis.
J. L. Minor	Randolph Building, Memphis.
E. D. Mitchell	Randolph Building, Memphis.
R. H. Mitchell	Southern Express Building, Memphis.
Alfred Moore	Randolph Building, Memphis.
Moore Moore	Memphis Trust Building, Memphis.
A. B. Oliver	Tennessee Trust Building, Memphis.
L. H. Pendergrast	Memphis Trust Building, Memphis.
W. H. Pistole	Byrd Building, Memphis.
A. R. Porter	Randolph Building, Memphis.
Henry Posert	Southern Express Building, Memphis.
J. W. Price, <i>Secretary</i>	Memphis Trust Building, Memphis.
N. F. Raines	78 N. Main Street, Memphis.
W. D. Ray	Randolph Building, Memphis.
W. B. Rogers	Rogers Building, Memphis.
J. H. E. Rosamond	Byrd Building, Memphis.
S. T. Rucker	935 S. Bellevue, Memphis.

A. W. Rudisill	1014 Patton Avenue, Memphis.
D. K. Sauls	174 S. Main Street, Memphis.
D. D. Sanders (Veteran) (deceased)	Southern Express Bldg., Memphis.
G. H. Savage	Randolph Building, Memphis.
M. A. Schultz	40 W. Iowa Street, Memphis.
W. L. Simpson	Randolph Building, Memphis.
A. G. Sinclair	Southern Express Building, Memphis.
F. D. Smythe	Porter Building, Memphis.
J. B. Stanley	Randolph Building, Memphis.
R. S. Stanley	Randolph Building, Memphis.
W. W. Taylor	Randolph Building, Memphis.
G. B. Thornton (Veteran)	150 Court Street, Memphis.
B. F. Turner	I. O. O. F. Building, Memphis.
J. A. Valentine	R. F. D. 1, Brunswick.
J. A. Van Horn	78 N. Main Street, Memphis.
W. J. Wadlington	Randolph Building, Memphis.
W. R. Wallace	958 S. Fourth Street, Memphis.
J. M. Walton	640 N. Seventh Street, Memphis.
Eugene Wasdin	Marine Hospital, Byrd Building, Memphis.
W. S. Webb	521 S. Front Street, Memphis.
C. A. White	Tennessee Trust Building, Memphis.
A. B. Williams	Randolph Building, Memphis.
Edwin Williams	I. O. O. F. Building, Memphis.
A. L. Winston	781 N. Sixth Street, Memphis.
H. S. Wolff	Southern Express Building, Memphis.

SMITH COUNTY.

M. N. Alexander	Pleasant Shade.
B. D. Austin	Oliver.
Isham Beasley	Dixon Springs.
J. J. Beasley	Pleasant Shade.
W. F. Boze	Elmwood.
J. G. Bridges	New Middleton.
J. S. Campbell	Gordonsville.
J. H. Chism	Carthage.
M. O. Davis, <i>President</i>	Carthage.
C. H. Donoho	Difficult.
B. J. High	Stonewall.
R. E. Key, <i>Secretary</i>	Monoville.
R. W. King	Gordonsville.
C. D. Robbins	Gordonsville.
Frank Swope	Carthage.

SULLIVAN COUNTY.

J. S. Bachman	Bristol.
Jas. A. Delaney	Bristol.

Nat T. Dulaney	Bristol.
Chas. W. Fleenor	Holston Valley.
M. M. Pearson	Bristol.
G. M. Peavler	Bristol.
Noah S. Peters	Bristol.
N. H. Reeve, <i>Secretary</i>	Bristol.
M. B. St. John, <i>President</i>	Bristol.
E. W. Tipton	Kingsport.

SUMNER COUNTY.

Wm. P. Appling	Portland.
W. S. Dotson	Gallatin.
F. H. Dunklin	R. F. D. 3, Gallatin.
W. N. Lackey, <i>President</i>	Gallatin.
Thos. L. Lanier	Portland.
Jno. R. Parker	Gallatin.
E. F. Peeden	Portland.
Homer E. Reese, <i>Secretary</i>	Gallatin.
A. J. Swaney (Veteran)	Gallatin.
Virgil A. Walden	R. F. D., Bethpage.
L. Miller Woodson	Gallatin.
Thos. M. Woodson (Veteran)	Gallatin.

TIPTON COUNTY.

C. C. Bentley	R. F. D. 2, Kerrville.
A. B. Blaydes	Atoka.
Geo. B. Brown	Brighton.
Bryson H. Cooper	R. F. D. 5, Covington.
B. V. Dickson	Covington.
J. W. Ethridge	Reverie.
T. B. Gassoway	Covington.
G. B. Gillespie	Covington.
Jas. H. Hanna	Covington.
E. B. Herring	Gainesville.
Lafayette Hill, Jr.	Covington.
Sebastian Hurt	R. F. D. 2, Brighton.
N. Walter Kelly	R. F. D. 2, Covington.
Joseph W. McBride	Covington.
N. R. Newman	Bride.
Jno. C. Rice	Braden.
Holmes Roane	R. F. D. 2, Covington.
A. J. Roby	Tabernacle.
W. H. W. Sale	Covington.
H. N. Sullivan, <i>Secretary</i>	Covington.
J. F. Wilson, <i>President</i>	Burleson.
Jas. B. Witherington	Munford.

A. S. Witherington	Munford.
L. A. Yarbrough	Covington.
W. A. Young	Atoka.

UNICOI COUNTY.

J. T. Carter	Erwin.
E. B. Harrell; <i>Secretary</i>	Unicoi.
T. C. Hensley	Flag Pond.

WARREN COUNTY.

Thos. Overton Burger, <i>Secretary</i>	McMinnville.
H. V. Copenhaver	R. F. D. 1, Rock Island.
W. B. Cummings (Veteran)	Bishop.
Henry A. Doyle	McMinnville.
L. B. Gilbert	McMinnville.
B. F. Loring	McMinnville.
Elbert L. Mooneyham	Rock Island.
C. T. Martin, <i>President</i>	McMinnville.
Eugene E. Northcutt	McMinnville.
A. B. Ramsey	McMinnville.
Albert Seitz	McMinnville.
A. J. Trail	McMinnville.
M. M. Tubb	R. F. D. 5, McMinnville.

WASHINGTON COUNTY.

Chas. J. Broyles, <i>President</i>	Johnson City.
John W. Cox	Johnson City.
E. L. Deadrick	Johnson City.
Wilbur T. Kennedy	Johnson City.
Edwin A. Long	Johnson City.
Wm. J. Matthews	Johnson C'ty.
Geo. A. McClain	Johnson City.
Elbert S. Miller	Johnson City.
Walter J. Miller	Johnson City.
G. J. Sells	Johnson City.
Daniel Trigg, Jr., <i>Secretary</i>	Johnson City.

WEAKLEY COUNTY.

Hugh Barr, <i>Secretary</i>	Dresden.
R. M. Biggs	Palmersville.
V. A. Biggs	Martin.
J. B. Bond	Gardner.
H. S. Copeland, <i>President</i>	Palmersville.
J. B. Finch	Dresden.
Carl Finch	Dresden.
R. M. Little	Dresden.
W. W. Mitchell	Greenfield.

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D. W. Scates	Martin.
J. D. Shannon	Greenfield.
J. E. Shannon	Sharon.
J. C. Young	Martin.

WHITE COUNTY.

R. F. Baker	R. F. D. 5, Sparta.
W. J. Breeding	Ravenscroft.
W. L. Brock	R. F. D. 1, O'Connors.
W. B. Cantrell	Cassville.
L. D. Cotton	R. F. D. 2, Sparta.
P. H. Earles	R. F. D. 3, Sparta.
S. E. Gaines	Sparta.
D. R. Gist, <i>President</i>	Sparta.
O. W. Hill	Clifty.
Wm. M. Johnson	Eastland.
P. K. Lewis	Doyle Station.
V. L. Lewis	Crossville.
B. S. Rhea	Bon Air.
A. F. Richards, <i>Secretary</i>	Sparta.
R. E. L. Smith	Doyle Station.
E. G. Sullivan	Sparta.
W. B. Young	Clifty.

WILLIAMSON COUNTY.

W. H. Barnett	R. F. D. 2, Franklin.
H. P. Cochrane	Franklin.
J. B. Core	Bethesda.
Clyde Eggleston	R. F. D. 27, Spring Hill.
Dan German, Jr.	Franklin.
W. W. Graham	Arno.
J. W. Greer	Thompson's Station.
Jas. P. Hanner	Franklin.
J. W. Hatcher	Franklin.
Samuel Henderson	Franklin.
K. S. Howlett, <i>Secretary</i>	Franklin.
S. J. House	Franklin.
B. T. Nolen	R. F. D. 3, Franklin.
S. F. Oden	Brentwood.
G. C. Paschall, <i>President</i>	Arrington.
J. O. Shannon	Franklin.
S. W. White	Franklin.

U. S. NAVY.

W. R. Webb	P. A. S., U. S. N. Hospital, San Juan, P. R.
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ALPHABETICAL LIST OF MEMBERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION—1908.

This is the most complete list of members and data we have been able to issue. You will confer a favor if you will look for errors, omissions, changes, removals, etc., and notify the State Secretary, as it is quite difficult to keep this list up to date without the help of all concerned.

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd.	ALMA MATER.	Joined
Abernathy, A. H. . .	Dickson	Dickson . . .	1888	1889	Univ. of Nashville . . .	1903
Abernathy, B. F. . .	Danville	Henry	1875	1889	Univ. of Louisville . . .	1906
Abernathy, C. A. . .	Pulaski	Henry	1887	1889	Vanderbilt Univ.	1903
Abernathy, G. T. . .	Paris	Giles	1907	1907	Vanderbilt Univ.	1901
Abernathy, Shields. . .	Pulaski	Hamilton	1893	1893	Univ. of Louisville . . .	1903
Abernathy, T. E. . .	Chattanooga	Giles	1875	1889	Univ. of Louisville . . .	1903
Abernathy, W. D. . .	Pulaski	Hamilton	1868	1889	Univ. of Nashville . . .	1895
Abernathy, Y. L. . .	Hill City	Knox	1887	1889	Univ. of Tennessee . . .	1903
Acuff, Samuel D. . .	Knoxville	Blount				
Adams, N. B.	Townsend	Gibson	1898	1898	Univ. of Tennessee . . .	
Adkisson, J. E. . . .	Medina	Polk	1903	1903	Chatt. Med. Coll.	1904
Atkins, E. M.	McCay's	Fayette	1882	1889	Coll. of P. & S., Balti. .	1903
Albright, J. A. . . .	Somerville	Lake	1889	1889	Vanderbilt Univ.	1903
Alexander, Jno. D. .	Cronansville	Smith	1896	1904	Univ. of Tennessee . . .	1905
Alexander, M. N. . .	Pleasant Shade . . .	Lake	1901	1901	Univ. of Nashville . . .	1903
Alexander, W. S. . .	Ridgely	Giles	1874	1889	Univ. of Nashville . . .	1903
Allen, A. M.	Buford	Haywood	1880	1889	Bellevue Hos. Med. Cl. .	1902
Allen, Jno. T.	Brownsville	Bedford	1860	1889	Univ. of Nashville . . .	1903
Allison, M. W. . . .	Whittaker	Davidson	1886	1889	Vanderbilt Univ.	1889
Altman, J. T.	Nashville	Davidson	1907	1906	Vanderbilt Univ.	1908
Anderson, C. F. . . .	Nashville	Hamilton	1896	1897	Vanderbilt Univ.	1903
Anderson, E. B. . . .	Cbattauooga	Hamilton	1896	1889	Chatt. Med. Col.	1889
Anderson, E. C. . . .	Chattanooga	Maury	1907	1907	Univ. of Nashville . . .	1908
Anderson, H. O. . . .	Williamsport	Jefferson	1891		Tenn. Med. Coll.	1903
Anderson, J. C. . . .	Oak Grove	Lincoln	1860	1889	Univ. of Georgia	1904
Anderson, J. M. . . .	Fayetteville	Davidson			Vanderbilt Univ.	1903
Anderson, W. B. . . .	Nashville	Hamilton	1898	1899	Vanderbilt Univ.	1903
Anderson, W. E. . . .	Chattanooga	Shelby	1900	1902	Tulane University	1903
Anderson, W. S. . . .	Memphis	Hamilton	1882	1891	Harvard Medical.	1903
Applegate, W. A. . .	Chattanooga	Sumner	1887	1889	Univ. of Tennessee . . .	1904
Appling, W. P. . . .	Portland	Knox				
Armstrong, W. H. . .	Rogersville	Henderson	1870	1889	Vanderbilt Univ.	1903
Arnold, Jas. M. . . .	Lexington	Davidson	1852	1889	Univ. of Nashville . . .	1895
Atchison, W. A. . . .	Nashville	Hamilton	1892	1893	Jefferson Medical . . .	1902
Atlee, Jas. H.	Chattanooga	Smith	1886	1889	Elec. Med. Inst., Cin. .	1905
Austin, B. D.	Oliver	Knox	1899	1901	Univ. of Penu.	
Austin, W. S.	Knoxville	Shelby	1905	1905	Mem. Hos. Med. Col. .	1906
Ayers, J. C.	Memphis	Giles				
Aymett, Robt. E. . .	Pisgah	Sullivan	1890	1890	Vanderbilt Univ.	1906
Bachman, J. S. . . .	Bristol	Monroe	1904	1904	Chatt. Med. Coll.	1906
Bagwell, W. B. . . .	Madisonville	White	1874	1889		1904
Baker, R. F.	Sparta	Greene				
Bailey, G. N.	Baileytown	Davidson	1885	1889	Vanderbilt Univ.	1903
Bailey, Wm.	Nashville	Campbell	1898	1903	Birmingham Med. Col. .	1904
Bains, R. C.	Wooldridge	Scott	1905	1905	Tenn. Med. Col.	1908
Baird, A. A.	Helenwood	Vilde			Baltimore Med. Col. .	1903
Baird, B. F.		Henderson	1875	1889	Vanderbilt Univ.	1903
Baird, Jno. W.		Chester			Mem. Hos. Med. Col. .	1903
Baldwin, W. H. . . .	Memphis	Shelby	1901	1902	Memp. Hos. Med. Col. .	1903
Bales, T. E.	Morristown	Hamblen	1891	1889	Vanderbilt Univ.	1903
Banks, D. F.	Nashville	Davidson	1880	1889	Univ. of Nashville . . .	1884
Barks, W. A.	Chattanooga	Hamilton	1906	1906	Chatt. Med. Coll.	1907
Barbee, J. T.	Jackson	Madison	1898	1895	Bellevue Hos. Med. Cl. .	1903
Barker, W. J.	Brazil	Gibson	1901	1902	Memp. Hos. Med. Col. .	1903
Barlow, Geo. W. . . .	Westmoreland	Sumner		1889		1906

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Lic'n'd.	ALMA MATER.	Joined
Barnes, Isaac	AtPontley	Bledsoe	1908	1908	Chatt. Med. Coll.	1908
Barnett, J. P.	Pikeville	Bledsoe	1880	1889	Vanderbilt Univ.	1908
Barnett, W. H.	Franklin	Williamson	1898	1898	Univ. of Louisville	1903
Barr, H.	Dresden	Weakley	1907	1908	Vanderbilt Univ.	1907
Barr, R. A.	Nashville	Davidson	1894	1895	Vanderbilt Univ.	1892
Barrett, N. D.	Chattanooga	Hamilton	1901	1902	Memp. Hos. Med. Col.	1905
Barflett, R. E., Jr.	Nashville	Davidson	1907	1907	Vanderbilt Univ.	1908
Barton, J. L.	Memphis	Shelby	1895	1895	Vanderbilt Univ.	1903
Bates, J. P.	Nashville	Davidson	1894	1889	Vanderbilt Univ.	1908
Batton, J. A.	Coble	Hickman	1894	1889	Univ. of Tennessee	1904
Baugh, John E.	Elkton	Giles	1882	1889	U. L'vile & Jeff. M. C.	1905
Iauman, J. W.	Nashville	Davidson	1904	1904	Vanderbilt Univ.	1905
Baxter, R. C.	Caney Springs	Marshall	1889	1889	Bellevue Hos. Med. Cl.	1889
Bazemore, G. M.	Cleveland	Bradley	1874	1889	Univ. of the South	1905
Bearden, H. K.	Sherman Heights	Hamilton	1901	1901	Chatt. Med. Coll.	1908
Bean, R. L.	Cleveland	Bradley	1898	1898	Vanderbilt Univ.	1905
Beasley, M. A.	Hampshire	Maury	1904	1904	Tulane University	1903
Beasley, E. M.	Coal Creek	Anderson	1891	1893	Univ. of Tennessee	1906
Beasley, Isham	Dickson Springs	Smith	1905	1905	Univ. of Tennessee	1904
Beasley, Jno. S.	Centreville	Hickman	1894	1894	Univ. of Tennessee	1904
Beasley, J. J.	Pleasant Shade	Smith	1904	1903	Univ. of Tennessee	1904
Beasley, O. W.	Coal Creek	Auderson	1903	1903	Univ. of Tennessee	1903
Beasley, R. P.	Coble	Hickman	1894	1894	Jefferson Med. Coll.	1905
Beauchamp, J. L.	Memphis	Shelby	1861	1889	Vanderbilt Univ.	1900
Beauchamp, Jno. A.	Nashville	Davidson	1908	1908	P. & S., Memphis	1908
Beck, C. M.	Memphis	Shelby	1897	1897	Univ. of Nashville	1904
Bell, C. Bailey	Nashville	Davidson	1894	1894	Vanderbilt Univ.	1903
Bell, J. B.	Greeneville	Gibson	1893	1894	Vanderbilt Univ.	1903
Bennett, B. T.	Trenton	Tipton	1892	1890	Univ. of Louisville	1906
Bentley, C. C.	Kerrville	Hamilton	1875	1889	Univ. of Tennessee	1883
Berlin, H.	Chattanooga	Monroe	1867	1889	Jefferson Med. Coll.	1905
Berry, F. K.	Sweetwater	Monroe	1882	1894	Vanderbilt Univ.	1900
Bicknell, G. O.	Etowah	Maury	1905	1905	Univ. of Nashville	1906
Biddle, P. D.	Columbia	Shelby	1881	1903	Missouri Med. Coll.	1903
Bigham, W. M.	Kerrville	Weakley	1877	1889	Vanderbilt Univ.	1904
Biggs, R. M.	Palmersville	Martin	1884	1884	Vanderbilt Univ.	1902
Biggs, V. A.	Murfreesboro	Rutherford	1884	1884	Univ. of Maryland	1884
Bilbro, W. C.	Nashville	Davidson	1906	1906	Vanderbilt Univ.	1907
Billington, R. W.	Hustburg	Humphreys	1875	1889	Vanderbilt Univ.	1903
Binkley, D. C. K.	Minor Hill	Giles	1905	1905	Univ. of Nashville	1907
Black, W. E.	Nashville	Davidson	1883	1880	Col. of P. & S., Balt.	1903
Black, W. G.	Memphis	Shelby	1898	1898	Memp. Hos. Med. Col.	1903
Black, W. T.	Memphis	Shelby	1889	1900	Memp. Hos. Med. Col.	1903
Blackburn, E. C.	Pulaski	Giles	1893	1892	Vanderbilt Univ.	1903
Blackburn, J. K. P.	Jackson	Madison	1883	1883	Vanderbilt Univ.	1900
Blackmon, J. A.	Whorley	Hamilton	1901	1904	Chatt. Med. College	1905
Blackwell, O. L.	Normandy	Bedford	1893	1893	Univ. of Nashville	1904
Blair, E. K.	Nashville	Davidson	1879	1899	Med. Coll. of S. C.	1903
Blake, D. B.	Maryville	Knox	1875	1889	Vanderbilt Univ.	1904
Blankenship, J. P.	Blanton, M. A.	Greene	1889	1889	Vanderbilt Univ.	1904
Blanton, M. A.	Union City	Obion	1903	1903	Vanderbilt Univ.	1903
Blaydes, A. B.	Atoka	Tipton	1897	1897	Ky. School of Med.	1903
Bloomstein, S. M.	Nashville	Davidson	1896	1896	Univ. of Nashville	1896
Bogart, W. G.	Chattanooga	Hamilton	1883	1889	Univ. of Tennessee	1883
Bogart, W. M.	Hill City	Hamilton	1889	1889	Bellevue Med. Coll.	1896
Bolen, C. E.	Wildersville	Heuderson	1890	1890	Vanderbilt Univ.	1908
Bond, J. B.	Gardner	Weakley	1897	1897	Univ. of Tennessee	1908
Booker, Geo. W.	Mooresburg	Knox	1891	1891	Tenn. Med. College	1904
Booth, S. D.	Maury City	Crockett	1893	1895	Univ. of Louisville	1903
Bosworth, R. D.	Knoxville	Knox	1887	1889	Univ. of Louisville	1903
Rowen, Wm.	Knoxville	Knox	1887	1889	McGill Uni., Montreal	1903
Boyatt, F. M.	Oneida	Scott	1905	1906	II. C. of Med., L'ville	1908
Boyd, A. W.	Chattanooga	Hamilton	1885	1889	Med. Coll. of Ga.	1888
Boyd, Jno. M.	Knoxville	Knox	1856	1859	Univ. of Penu.	1892
Boyd, M. P.	Farmville	Henderson	1872	1889	Vanderbilt Univ.	1903
Boyd, S. B.	Knoxville	Knox	1875	1889	Univ. of Penn.	1892
Boze, W. F.	Elmwood	Smith	1892	1892	Univ. of Nashville	1904
Bradford, A. D.	Belleview	Davidson	1881	1889	Vanderbilt Univ.	1901
Bradley, M. L.	Sadlersville	Robertson	1890	1890	Univ. of Tennessee	1908
Branch, B. L.	Collierville	Shelby	1881	1889	Univ. of Nashville	1889
Brandau, J. W.	Clarksville	Montgom'y	1881	1889	Univ. of Nashville	1889

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd	ALMA MATER.	Joined
Brassfield, S. W.	Crockett Mills	Crockett	1893			1903
Braun, W. T.	Memphis	Shelby	1898	1898	Memp. Hos. Med. Col.	1903
Breeding, W. J.	Ravenscroft	White	1893	1893	Univ. of Tennessee	1897
Brew, James	Nashville	Davidson	1889	1900	Univ. of Nashville	1905
Brewer, J. D.	Newbern	Dyer	1901	1901	Univ. of Nashville	1904
Bridgeforth, D. O.	Memphis	Shelby	1902	1902	Vanderbilt Univ.	1908
Brider, J. D.	Memphis	Shelby	1902	1904	Columbia, Wash. D.C.	1905
Bridges, J. G.	New Middleton	Smith	1891	1890	Univ. of Nashville	1904
Briggs, C. S.	Nashville	Davidson	1875	1889	Univ. of Nashville	1876
Brinkley, G. T.	Fayette Corner	Fayette	1902	1903	Memp. Hos. Med. Col.	1903
Britton, F. C.	Greeneville	Grecne	1893		Chatt. Med. Coll.	1903
Brock, B. B.	Blanche	Lincoln	1894	1895	Vanderbilt Univ.	1904
Brock, R. N.	Sweetwater	Monroe	1901	1904	Tenn. Med. Colleg.	1908
Brock, W. L.	O'Connors	White		1889		1904
Brooks, H. T.	Nashville	Davidson				1908
Bromberg, Perry	Nashville	Davidson	1895	1896	Univ. of Tennessee	1899
Brower, Charles	Nashville	Davidson	1885	1889	Vanderbilt Univ.	1903
Brown, C. W.	Nashville	Davidson	1904	1903	Univ. of Nashville	1908
Brown, D. R.	Nashville	Davidson	1904	1904	Memp. Hos. Med. Col.	1908
Brown, B. F.	Jefferson City	Jefferson		1889		1903
Brown, G. B.	Brighton	Tipton	1890	1890	Memp. Hos. Med. Col.	1903
Brown, I. B.	Mosheim	Greene		1903		1903
Brown, Jno. R.	Bearden	Knox	1882	1889	Ind. Med. Col.	
Brown, T. B.	Columbia	Maury	1897	1897	Baltimore Med. Coll.	
Brown, T. L. B.	White House	Robertson	1899	1899	Univ. of Tennessee	1906
Broyles, C. J.	Johnson City	Washington	1888	1889	Johns Hopkins	1906
Brush, C. E.	Nashville	Davidson	1903	1906	Vanderbilt Univ.	1908
Bryan, O. N.	Nashville	Davidson	1907	1907	Vanderbilt Univ.	1901
Bryan, W. A.	Nashville	Davidson	1899	1899	Memp. Hos. Med. Coll.	1908
Bryant, G. C.	McLemoresville	Carroll	1903	1902	Vanderbilt Univ.	1908
Bryant, A. J.	Bedford	Gibson	1907	1907	Vanderbilt Univ.	1908
Buckner, M. G.	Nashville	Davidson	1897	1897	Univ. of Nashville	1897
Buford, G. G.	Memphis	Shelby	1880	1889	Vanderbilt Univ.	1904
Buist, W. E.	Nashville	Davidson	1894	1897	Col. P. & S., N. Y.	1903
Burch, L. E.	Nashville	Davidson	1897	1898	Vanderbilt Univ.	1904
Burdette, G. M.	Lenoir City	Loudon		1889		1897
Burger, Thos. O.	McMinnville	Warren	1900	1900	Vanderbilt Univ.	1904
Burns, W. B.	Memphis	Shelby	1892	1902		
Butler, H. T.	Union City	Obion	1884	1902	Ky. School of Med.	1903
Butler, Geo. D.	Pulaski	Giles	1876	1889	Univ. of Louisville	1903
Butterworth, J. L.	White's Creek	Davidson	1888	1889	Vanderbilt Univ.	1907
Burke, R. A.	Dyersburg	Dyer	1894	1894	Vanderbilt Univ.	1903
Byrd, E. H.	Sherman Heights	Hamilton	1890	1895	Ec. Med. Inst., Cinn.	1903
Cain, Jno. S.	Nashville	Davidson	1853	1889	Univ. of Nashville	1883
Caldwell, R. D.	Milan	Gibson	1880	1889	Vanderbilt Univ.	1903
Caldwell, J. M.	Jefferson City	Jefferson	1891	1891	Univ. of Louisville	1903
Caldwell, Robt.	Nashville	Davidson	1903	1904	Univ. of Tennessee	1904
Campbell, H. T.	Nashville	Davidson	1895	1895	Univ. of Nashville	1903
Campbell, J. F.	Morristown	Hamblen				1903
Campbell, J. S.	Gordonsville	Smith	1888	1889	Vanderbilt Univ.	1905
Campbell, Michael	Bearden	Knox	1874	1889	Univ. of Nashville	1876
Campbell, S. S.	Memphis	Shelby	1901	1901	Memp. Hos. Med. Col.	1904
Campbell, W. C.	Memphis	Shelby				
Cannon, W. F.	Belleville	Lincoln	1892	1893	Vanderbilt Univ.	1904
Cantrell, W. B.	Cassville	White	1907	1907	Univ. of Nashville	1904
Cantrell, R. H.	Jackson	Madison	1881	1889	Bellevue	
Carden, W. L.	Andersonsville	Anderson		1889	Univ. of Tennessee	1903
Capps, C. M.	Knoxville	Knox	1889	1889	Univ. of Nashville	
Carney, E. M.	Shelbyville	Bedford	1892		Univ. of N. and V.	1903
Carmichael, C. J.	Knoxville	Knox	1902	1902	Vanderbilt Univ.	1905
Carmichael, J. W.	Knoxville	Scott	1902	1902	Chattanooga Med. Col.	1908
Carr, H. M.	Glenmary	Bradley	1898		Univ. of Nashville	1899
Carroll, Chas. T. Jr.	Cleveland	Chester	1875	1889	Univ. of Nashville	1903
Carroll, Jas. R.	Henderson	Shelby				
Carter, J. H.	Memphis	Unicoi	1901	1901	Vanderbilt Univ.	1908
Carter, J. T.	Erwin	Hamblen	1900	1900	Vanderbilt Univ.	1903
Cass, H. M.	Morristown	Knox				
Cassenburg, S. F.	Knoxville	Shelby	1892	1902	Vanderbilt Univ.	1903
Castles, W. S. A.	Memphis	Dickson				
Castleman, J. A.	Charlotte	Bradley		1889		
Cate, P. Watt.	Charleston	Knox	1888	1889		
Cates, Benj. B.	Knoxville				Univ. of Penn.	1903

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd	ALMA MATER.	Joined
Catlett, W. A.....	Sevierville	Sevier	1897	1897	Tenn. Med. Coll.	1903
Chambers, T. E. P.....	Charleston	Bradley	1896	1901	Chatt. Med. College.	1907
Chandler, S. E.....	Minnick	Obion				1908
Cherry, E. O.....	Newbern	Dyer	1885	1885	Tulane University	1903
Chism, J. H.....	Carthage	Smith				1908
Cbittum, C. E.....	La Follette	Campbell	1898	1903	Memp. Hos. Med. Col.	1904
Church, R. M.....	Aetna	Hickman				
Clack, Jno. M.....	Rockwood	Roane	1891	1889	Univ. of Tennessee....	1905
Clack, W. S.....	Rockwood	Roane	1903	1903	Vanderbilt Univ.	1905
Clark, C. Y.....	Mt. Pleasant	Maury	1897	1897	Vanderbilt Univ.	1906
Clark, J. C.	Memphis	Shelby				
Clary, W. F., Jr.....	Memphis	Shelby	1903	1904	Vanderbilt Univ.	1903
Clary, W. F.....	Bellbuckle	Bedford	1875	1889	Vermont Med. Coll.	1879
Clear, Jno.	Clinton	Anderson	1885	1889	Ky. School of Med.	1903
Clifton, J.	Hickory Valley	Hardeman	1906	1905	Univ. of Nashville....	1907
Cline, B. E.....	White Piue	Jefferson	1894		Univ. of Louisville....	1904
Cline, P. L.....	White Pine	Jefferson	1869	1906	Washington Univ.	1907
Clopton, A. T.....	Milan	Gibson	1902	1902	Vanderbilt Univ.	1903
Cloyd, J. W.....	Mosheim	Greene		1889		1903
Coble, T. J.....	Shelbyville	Bedford	1898	1898	Vanderbilt Univ.	1899
Cobleigh, C. A.....	Chattanooga	Hamilton	1897	1897	Chatt. Med. College.	1905
Cochran, H. P.....	Franklin	Williamson	1874	1903	N. Y. Med. Coll.	1903
Cochran, R. P.....	Cleveland	Bradley	1903	1903	Chatt. Med. College.	1908
Cochran, T. N.....	Trenton	Gibson	1886	1889	Univ. of Nashville....	1904
Cochran, W. R.....	Cleveland	Bradley	1890	1907	U. S. Grant Univ.	1908
Cochrane, W. R.....	Knoxville	Knox	1885	1898	Univ. of Penn.	1897
Coile, H. P.....	Knoxville	Knox	1875	1890	Jefferson Med. Coll.	
Cole, W. H.....	Minor Hill	Giles				1908
Coles, Van H.....	Nashville	Davidson	1899	1899	Vanderbilt Univ.	1903
Collins, E. E.....	Columbia	Maury	1889	1890	Vanderbilt Univ.	1903
Conley, H. P.....	Alamo	Crockett	1905	1905	Univ. of Kentucky....	1906
Connell, J. R.....	Adam's Station	Robertson	1892	1896	Univ. of Tennessee....	1903
Conyers, D. J.....	Goodwin	Crockett	1899		Memp. Hos. Med. Col.	1903
Cook, H. W.....	Alamo	Crockett	1883	1889	Memp. Hos. Med. Col.	1903
Cook, M. M.....	Columbia	Maury	1902	1902	Univ. of Tennessee....	1903
Cooke, A. B.....	Nashville	Davidson	1891	1896	Vanderbilt Univ.	1896
Cooper, B. H.....	Govington	Tipton	1890	1890	Memp. Hos. Med. Col.	1903
Cooper, J. D.....	Sun Rise	Hickman	1888	1889		1905
Cooley, J. T.....	Waverly	Humphreys	1889	1889	Vanderbilt Univ.	1903
Cooper, W. E.....	Nashville	Davidson	1907	1907	Vanderbilt Univ.	1908
Cooper, W. S.....	Shady Grove	Jefferson				
Copeland, H. S.....	Palmersville	Weakley	1893	1895	Univ. of Nashville....	1902
Copeland, W. F.....	Campbellsville	Giles	1904	1904	Univ. of Nashville....	1906
Copeland, W. J.....	Fitzerton	Polk	1861	1889		1903
Copenhaver, H. V.....	Rock Island	Warren		1890		1904
Copenhaver, M. M.....	Knoxville	Knox	1902	1902	Tenn. Med. Col.	1903
Core, J. B.....	Bethesda	Williamson	1892	1892	Univ. of Nashville....	1903
Cornell, R. R.....	Chattanooga	Hamilton	1902	1902	Chatt. Med. College.	1907
Cottingham, C. M.....	Teague	Hardeman	1906	1906	Memp. Hos. Med. Col.	1908
Cotton, L. D.....	Sparta	White	1902	1902	Univ. of Nashville....	1904
Covington, J. J.....	Cross Plains	Robertson	1897	1897	Vanderbilt Univ.	1906
Cowden, Chas. N.....	Nashville	Davidson	1886	1889	Vanderbilt Univ.	1896
Cox, J. B.....	Huntingdon	Carroll	1878	1889	Nashville Med. Coll.	1904
Cox, Joe M.....	Edgemore	Anderson				
Cox, Jno. W.....	Johnson City	Washington	1884	1889	Coll. of P. & S., Balt.	1903
Craig, J. R.....	Dyersburg	Dyer	1893	1893	Vanderbilt Univ.	1903
Crawford, J. P.....	Nashville	Davidson	1893	1900	Univ. of Maryland....	1895
Crawford, J. Y.....	Nashville	Davidson	1885	1889	Univ. of Tennessee....	1889
Crice, G. W.....	Whiteville	Hardeman	1907	1906	Univ. of Nashville....	1908
Crisler, J. A.....	Memphis	Shelby	1890	1905	Memp. Hos. Med. Col.	1905
Crockett, S. S.....	Nashville	Davidson	1885	1889	Vanderbilt Univ.	1889
Crockett, W. M.....	New Middleton	Smith	1898	1904	Univ. of Tennessee....	1905
Crofford, T. J.....	Memphis	Shelby	1876	1889	H. C. of Med., L'ville	1886
Crook, J. A.....	Jackson	Madison	1870	1889	Jefferson Med. Coll.	1886
Crook, J. L.....	Jackson	Madison	1894	1895	Vanderbilt Univ.	1894
Crosthwaite, G. W.....	Florence	Rutherford	1870	1889	Univ. of Louisville....	1903
Crunk, J. C.....	Lunn	Marshall				1903
Crutcher, J. R.....	Memphis	Shelby	1882	1889	Vanderbilt Univ.	1904
Culbreath, L. W.....	Stanton	Haywood				
Cullom, G. F.....	West Nashville	Davidson	1882	1889	Univ. of Tennessee....	1903
Cullom, M. M.....	Nashville	Davidson	1896	1899	Vanderbilt Univ.	1903
Cullom, J. M.....	Fayetteville	Lincoln	1905	1904	Univ. of Nashville....	

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Lien'd.	ALMA MATER.	Joined
Cummings, W. B.	Bishop	Warren	1889	1889	Univ. of Tennessee...	1889
Cunningham, J. M.	Shelbyville	Bedford	1888	1889	Univ. of Tennessee...	1899
Currie, J. A.	Memphis	Shelby				
Curry, G. B.	Toone	Hardeman	1903	1902	Memp. Hos. Med. Coll.	1906
Curry, J. M.	Toone	Hardeman	1907	1906	Memp. Hos. Med. Col.	1908
Cusick, Wm.	Knoxville	Knox	1898	1903		
Curtis, H. C.	Algood	Putnam	1906	1907	Grant University	1906
Dabney, A. S.	Nashville	Davidson	1904	1907	Vanderbilt Univ.	1908
Dake, Richard	Nashville	Davidson	1903	1903	Vanderbilt Univ.	1903
Dancy, A. B.	Jackson	Madison	1902	1902	Vanderbilt Univ.	1903
Daniel, W. H.	McEwen	Humphreys	1891	1892	Vanderbilt Univ.	1903
Darnall, J. F.	Obion	Obion	1895	1895	Vanderbilt Univ.	1903
Davis, James E.	Sweetwater	Monroe	1904	1904	Hosp. Med. Coll. Ky.	1905
Davis, D. E.	Springfield	Robertson	1888	1889	Vanderbilt Univ.	1906
Davis, C. H.	Knoxville	Knox	1898		Tenn. Med. College...	1903
Davis, K. D.	Chattanooga	Hamilton	1881	1889	Chatt. Med. College...	1904
Davis, M. O.	Carthage	Smith	1903	1904	Ky. School of Med...	1905
Davis, T. H.	Chattanooga	Hamilton	1902		Chatt. Med. College...	
Deaderick, C.	Knoxville	Knox	1871	1889	Univ. of Penn.	1880
Deaderick, E. L.	Johnson City	Washington				
Deane, A. M.	Brick Church	Giles	1900		Univ. of Nashville...	1903
DeArmond, C. C.	Knoxville	Knox	1883	1889	Univ. of Louisville...	1903
Delaney, Jas. A.	Bristol	Sullivan	1895		Hosp. Coll. of L'ville	1906
DeLoach, A. B.	Memphis	Shelby	1892	1894	Tulane University	1902
Delpuech, Wm.	Knoxville	Knox	1884	1889	Univ. of Penn.	1903
DeMoss, E. C.	Nashville	Davidson	1904	1903	Univ. of Nashville...	1905
Dennison, A. J.	Atwood	Carroll		1902		
Denton, Samuel	Buffalo Valley	Putnam	1890	1889	Vanderbilt Univ.	1904
DeWitt, Paul	Nashville	Davidson	1905		Vanderbilt Univ.	1906
Dail, V. C.	Knoxville	Knox	1891	1897	Tenn. Med. College...	
Dickson, B. V.	Covington	Tipton	1901	1900	Memp. Hos. Med. Col.	1903
Dice, J. B. F.	Morristown	Hamblen	1884	1889	Bellevue Hos. Med. Cl.	1888
Dickinson, R. C.	Ged	Haywood		1904		
Dietrich, W. A.	Chattanooga	Hamilton	1879	1889	Univ. of Maryland...	1905
Dinnon, J. W.	Knoxville	Knox				
Dixon, W. C.	Nashville	Davidson	1903	1903	Vanderbilt Univ.	1905
Doak, H. P.	Tuscumel	Greene	1893		Univ. of Nashville...	1904
Doak, R. S.	Nashville	Davidson	1894	1899	Univ. of Tennessee...	1903
Dodd, G. W.	Eaton	Gibson	1893	1894	Memp. Hos. Med. Col.	1903
Dodson, E. F.	Harriman	Roane	1882	1889	Univ. of Louisville...	1903
Donoho, C. H.	Difficult	Smith	1900	1900	Univ. of Nashville...	1905
Donohue, Thad	Memphis	Shelby	1867	1889	Univ. of Louisville...	1878
Dorris, H. E.	Bolivar	Hardeman	1901	1901	Memp. Hos. Med. Col.	1902
Dotson, W. S.	Gallatin	Sumner	1898	1898	Univ. of Tennessee...	1904
Douglas, A. E.	Nashville	Davidson	1892	1893	Univ. of Tennessee...	1901
Doyle, H. A.	McMinnville	Warren	1891		Vanderbilt Univ.	1904
Drake, C. C.	Hunt	Madison	1898	1898	Univ. of Nashville...	
Drake, C. M.	Knoxville	Knox				
Drenen, J. W.	Riverdale	Bedford	1890	1903	Univ. of Tennessee...	1903
Drennan, G. T.	Bellbuckle	Madison	1900	1900	Vanderbilt Univ.	1903
Duckworth, W. C.	Jackson	Rutherford	1884	1894	Vanderbilt Univ.	1904
Duggan, S. S.	Eagleville	Jefferson	1890		Univ. of Louisville...	1904
Dukes, N. M.	Strawberry Plains	Sullivan	1893		Tenn. Med. College...	1906
Dulaney, N.	Bristol	Dyer	1901	1901	Univ. of Nashville...	1904
Dulaney, O.	Newbern	Hamilton	1898	1898	Chatt. Med. College...	1899
Duncan, W. A.	Chattanooga	Sumner	1886	1889	Univ. of Tennessee...	1904
Dunklin, F. H.	Gallatin	Davidson	1901	1901	Univ. of Tennessee...	1905
Dunn, T. F.	Nashville	Shelby				
Dunnavant, B. N.	Memphis	DeKalb	1905		Vanderbilt Univ.	1908
Durham, M. J.	Silver Point	Robertson	1903	1903	Univ. of Nashville...	1906
Dye, W. B.	Sadlersville	Hamilton	1900	1900	Vanderbilt Univ.	1903
Dye, J. S.	Chattanooga	Putnam		1889		
Dyer, J. F.	Cookeville	Bedford	1900	1900	Vanderbilt Univ.	1907
Dyer, J. H.	Wartrace	White		1889	Univ. of Tennessee...	1904
Earles, P. H.	Sparta	Rutherford	1893	1893	Vanderbilt Univ.	1903
Earthman, V. K.	Murfreesboro	Loudon				
Eblin, J. G.	Lenoir City	James	1900	1901	Chatt. Med. College...	1905
Eblin, T. N.	Tyner	Anderson	1905		Tenn. Med. College...	1907
Eblin, W. H.	Wind Rock	Shelby	1904	1904	Memp. Hos. Med. Col.	1904
Edwards, C. W.	Memphis	Davidson	1880	1889	Rush Med. College...	1889
Edwards, G. P.	Nashville	Maury	1888	1889	Univ. of Tennessee...	1895
Edwards, J. A.	Columbia					

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Lic'd.	ALMA MATER.	Joined
Edwards, Jos. L.	Brownsville	Haywood	1885	...	Memphis Med. Coll.	1902
Edwards, T. D.	Union City	Obion	1884	1889	Univ. of Tennessee	1903
Eggleston, Clyde	Spring Hill	Williamson	...	1903	...	1904
Ellett, E. C.	Memphis	Shelby	1891	1895	University of Penn.	1902
Ellis, G. M.	Chattanooga	Hamilton	1887	1889	Univ. of Tennessee	1890
Ellis, J. J.	Knoxville	Knox	1899	1900	Tenn. Med. College	1903
Ellis, Sam C.	Chattanooga	Hamilton	1882	1889	Jefferson Med. Coll.	1905
Ellis, T. N.	Knoxville	Knox	...	1889	...	1903
Engles, W. J.	Smyrna	Rutherford	1885	1889	Univ. of Tennessee	1905
Enochs, W. N.	Huntingdon	Carroll	1888	1889	Vanderbilt Univ.	1903
Ensor, L. D. J.	Buffalo Valley	Putnam	1889	1902	Univ. of Tennessee	1904
Erskine, Alex	Memphis	Shelby	1858	1889	Univ. of New York	1903
Ethridge, J. W.	Reverie	Tipton	...	...	...	...
Evans, C. B.	Lonsdale	Knox	1903	1903	Univ. of Louisville	1906
Evans, N. G.	Nashville	Davidson	...	...	...	1908
Eve, Duncan	Nashville	Davidson	1874	1889	Bellevue Hos. Med. Cl.	1874
Eve, Duncan, Jr.	Nashville	Davidson	1904	1904	Vanderbilt Univ.	1904
Eve, Paul F.	Nashville	Davidson	1874	1889	Col. P. & S., N. Y.	1879
Everett, H. B.	Memphis	Shelby	1906	1906	Memp. Hos. Med. Col.	1908
Everhart, M. P.	Greeneville	Grcene	1906	1906	Chatt. Med. College	1907
Ewing, W. G.	Nashville	Davidson	1877	1889	Univ. of Nashville	1879
Fain, S. W.	Dandridge	Jefferson	1892	...	Univ. of New York	1896
Farmer, W. Scott	Gentry	Putnam	1890	1902	Vanderbilt Univ.	1904
Farrar, J. P.	Molino	Lincoln	1884	1889	Vanderbilt Univ.	1904
Farrington, P. M.	Memphis	Shelby	1895	1895	Memp. Hos. Med. Col.	1903
Fancher, H. L.	Orme	Marion	1901	1904	Chatt. Med. College	1905
Faucett, J. T.	Trenton	Gibson	1881	1881	Vanderbilt Univ.	1903
Ferguson, J. A.	Dyersburg	Dyer	1895	...	Univ. of Louisville	1905
Ferguson, L. F.	Nut Bush	Haywood	...	...	...	...
Ferguson, Robt.	Preacher's Mills	Montgomery	1886	1889	Vanderbilt Univ.	1903
Fessy, F.	Palmyra	Montgomery	1907	...	Univ. of Nashville	1908
Finch, Carl	Dresden	Weakley	1901	1901	Vanderbilt Univ.	1902
Finch, J. B.	Dresden	Weakley	1887	1889	Vanderbilt Univ.	1902
Finley, R. H.	Jellico	Campbell	1906	1906	Hosp. Coll. of Med.	1906
Fisher, R. J.	Poplins X Roads	Bedford	1901	1901	Univ. of Nashville	1907
Fitzgerald, J. G.	Campbellsville	Giles	1898	...	Vanderbilt Univ.	1903
Fitzgerald, T. F.	Knoxville	Knox	1890	...	Tenn. Medical College	1903
Flanigan, S. W.	Sevierville	Sevier	1894	1895	Tenn. Medical College	1903
Fleenor, C. W.	Holston Valley	Sullivan	1902	...	Ky. School of Med.	1906
Flippin, F. J.	Brunswick	Shelby	1897	1897	Memp. Hos. Med. Col.	1902
Flowers, D. W.	Little Lot	Hickman	...	...	...	1904
Flowers, J. C.	Dickson	Dickson	1895	1895	Univ. of Tennessee	1903
Fontaine, B. W.	Memphis	Shelby	1897	...	Univ. of Penn.	...
Forbes, E. C.	Blanche	Lincoln	1899	1901	Univ. of Nashville	1904
Ford, E. H.	Coal Creek	Anderson	1903	1903	Tenn. Medical College	1903
Forgey, C. A.	Columbia	Maury	1890	1890	Univ. of Tennessee	1903
Fort, R. E.	Nashville	Davidson	1894	1896	Vanderbilt Univ.	1897
Foster, A. E.	Knoxville	Knox	1890	1903	Univ. of Tennessee	...
Foster, J. I.	Huntsville	Scott	1908	1908	Tenn. Medical College	1908
Foute, W. T.	Lenoir City	Loudon	1882	1889	Southern Med. Coll.	1892
Fowler, C. O.	Spring Hill	Maury	1898	1904	Baltimore Med. Col.	1903
Fowler, S. A.	Chattanooga	Hamilton	1899	1901	Chatt. Med. College	1905
Fowlkes, J. A.	Dyersburg	Dyer	...	...	...	1908
Fox, C. P.	Greeneville	Greene	1888	1889	Univ. of New York	1900
Freeman, Eunice C.	Campbellsville	Giles	1901	...	Univ. of Tennessee	1903
Freeman, J. K.	Bellbuckle	Bedford	1899	1899	Univ. of Tennessee	1903
French, J. E.	Memphis	Shelby	1908	1908	Memp. Hos. Med. Col.	1908
Frey, J. H.	Nashville	Davidson	1902	1902	Univ. of Tennessee	1903
Frierson, W. G.	Shelbyville	Bedford	1897	1897	Univ. of Nashville	1897
Frlts, J. A.	Harriman	Roane	1894	1895	Southern Med. Coll.	1905
Fuller, J. L.	Humbolt	Crockett	...	1889	...	1902
Furguson, L. F.	Nut Bush	Haywood	...	1903	Memp. Hos. Med. Col.	1903
Fuqua, A. L.	Donelson	Davidson	...	...	...	1905
Fyke, B. F.	Springfield	Robertson	1877	1889	Vanderbilt Univ.	1903
Galnes, Jno. A.	Nashville	Davidson	1896	1897	Univ. of Tennessee	1901
Gaines, S. E.	Sparta	White	1890	1890	Univ. of Tennessee	1904
Gallaher, R. L.	Careyville	Campbell	1900	1900	Vanderbilt Univ.	1908
Gambill, A. J.	Loudon	Loudon	1899	1899	Col. of P. & S., Balt.	1903
Garrard, J. I.	Knoxville	Knox	...	...	...	...
Gassoway, T. B.	Covington	Tipton	1902	1902	Memp. Hos. Med. Col.	1903
Gates, Benj. F.	Cleveland	Bradley	1898	1898	Chatt. Med. College	1905
Gaylor, Wm.	Jellico	Campbell	1893	1895	Tennessee Med. Coll.	1906
Gee, J. J.	Chattanooga	Hamilton	1902	1902	Univ. of Tennessee	1903

JOURNAL TENNESSEE STATE MEDICAL ASSOCIATION.

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NAME.	POST-OFFICE	SOCIETY.	Grad'd	Licn'd.	ALMA MATER.	Joined
Gentry, J. A.....	Chattanooga	Hamilton	1905	1907	Univ. of Virginia	1907
George, L.....	Nashville	Davidson .....	.....	.....	.....	1908
George, W. A.....	Nashville	Davidson .....	.....	.....	.....	1908
German, D., Jr.....	Franklin	Williamson	1906	1905	Univ. of Nashville	1907
Gibbs, Vaulx	Chattanooga	Hamilton	1878	1889	Univ. of Nashville	1905
Gilbert, L. B.....	McMinnville	Warren .....	.....	.....	.....	1908
Gillespie, G. B.....	Covington	Tipton	1875	1889	Vanderbilt Univ.	1881
Gillespie, J. R.....	Dayton	Rhea	1890	.....	Vanderbilt Univ.	1893
Gillian, L. H.....	Kelso	Lincoln	1894	1895	Vanderbilt Univ.	1904
Gist, D. R.....	Sparta	White	1888	1889	Univ. of Tennessee	1903
Givan, G. C. G.....	Harriman	Roane	1890	1891	Med. Coll. of Ind.	1904
Glasgow, McP.....	Nashville	Davidson	1895	1897	Univ. of Penn.	1903
Glenn, W. Frank.....	Nashville	Davidson	1873	1889	Univ. of Nashville	1874
Goddard, W. L.....	Saulsbury	Hardeman	1890	1889	Memp. Hos. Med. Col.	1904
Goetz, H. E.....	Knoxville	Knox	1903	.....	Tenn. Medical Coll.	1906
Goodwin, J. D.....	West Nashville	Davidson .....	.....	.....	Univ. of Tennessee	1905
Goltman, M.....	Memphis	Shelby	1892	1896	Bishop U. of Canada	1897
Goodwin, J. B.....	Harriman	Roane	1884	1889	Southern Medical Col.	1903
Gould, D. T.....	Nashville	Davidson	1902	1902	Univ. of Nashville	1905
Gould, H. F.....	Box	Humphreys	1879	1889	Vanderbilt Univ.	1903
Grady, L. B.....	Nashville	Davidson	1876	1894	Univ. of Nashville	1893
Graham, C. G.....	Chattanooga	Hamilton	1905	1905	Chatt. Med. Coll.	1906
Graham, F.....	Memphis	Shelby .....	.....	.....	.....	1906
Graham, Joseph T.....	Booneville	Lincoln	1883	1889	Vanderbilt Univ.	1904
Graham, W. W.....	Arno	Williamson	1898	1898	Vanderbilt Univ.	1903
Grainger, R. A.....	Paris	Henry	1882	1889	Vanderbilt Univ. ....	.....
Greathouse, V. B.....	Dyersburg	Dyer .....	.....	.....	.....	1908
Green, C. W.....	Harriman	Roane	1893	1890	Vanderbilt Univ.	1903
Green, J. E.....	Chattanooga	Hamilton	1901	1907	Univ. of the South	1907
Green, J. H.....	Trimble	Dyer	1905	.....	Memp. Hos. Med. Col.	1907
Green, J. R.....	Springfield	Robertson	1904	1904	Univ. of Tennessee	1905
Greer, J. W.....	Thompson's Sta.	Williamson	1899	1898	Memp. Hos. Med. Col.	1903
Greer, R. L.....	Norwood	Madison .....	.....	1890	Vanderbilt Univ.	1903
Greer, W. A.....	Knoxville	Knox	1897	1898	Vanderbilt Univ.	1907
Gresham, J. W.....	Jackson	Madison	1895	1898	Ky. School of Med. ....	.....
Griffin, J. F.....	Tiptonville	Lake	1890	1890	Vanderbilt Univ.	1908
Griffin, R. B.....	Ridgley	Lake	1898	1898	Vanderbilt Univ.	1908
Griffin, R. W.....	Tiptonville	Lake	1894	1894	Tulane University	1897
Grigg, S. C.....	Murfreesboro	Rutherford	1877	1889	Univ. of Tennessee	1903
Grimes, G. C.....	Bodenham	Giles	1901	.....	Univ. of Tennessee	1903
Grimsley, V. H.....	Covington	Tipton	1895	1897	Memp. Hos. Med. Col.	1906
Grizzard, A. M.....	Huntingdon	Carroll	1892	1893	Vanderbilt Univ.	1903
Grizzard, R. W.....	Edgefield, R.F.D.	Davidson .....	.....	.....	.....	1906
Grizzard, R. W., Jr.....	Nashville	Davidson	1905	1904	Vanderbilt Univ.	1906
Guerin, H. C.....	Dickson	Dickson	1895	1895	Univ. of Nashville	1905
Gurney, C. H.....	Chattanooga	Hamilton	1901	1901	Univ. of the South	1906
Guynes, E. A.....	Knoxville	Knox	1906	1900	Tenn. Med. College	1907
Hackney, F. J.....	Knoxville	Knox	1900	1907	Univ. of the South	1907
Hackworth, C. L.....	So. Pittsburg	Marion	1901	1904	Chatt. Med. College	1906
Haggard, W. D.....	Nashville	Davidson	1893	1895	Univ. of Tennessee	1897
Hale, G. W.....	Nashville	Davidson	1872	1889	Col. P. & S., N. Y.	1887
Haley, Y. W.....	Nashville	Davidson	1897	1898	Vanderbilt Univ.	1903
Hall, D. M.....	Memphis	Shelby	1894	1897	Col. P. & S., N. Y.	1903
Hall, G. M.....	Lenoir City	Loudon .....	.....	.....	.....	.....
Hall, J. D.....	Murfreesboro	Rutherford	1883	1883	Vanderbilt Univ.	1903
Hall, L. B.....	Newbern	Dyer	1904	.....	Univ. of Nashville	1906
Hall, S. B.....	Clinton	Anderson	1893	1893	Tenn. Med. College	1903
Hallen, R. E.....	Reelfoot	Lake	1903	1902	Memp. Hos. Med. Col.	1908
Ham, E. C.....	Memphis	Shelby	1898	1900	Memp. Hos. Med. Col.	1903
Hamilton, F. B.....	Jackson	Madison	1867	1889	Univ. of Tennessee	1903
Hamilton, F. B., Jr.....	Jackson	Madison	1903	1906	Univ. of Nashville	1907
Handly, J. W.....	Nashville	Davidson	1887	1889	Univ. of Tennessee	1889
Hanna, Jas. H.....	Covington	Tipton	1886	1889	Memp. Hos. Med. Col.	1903
Hanner, Jas. P.....	Franklin	Williamson	1857	1889	Univ. of Penn.	1899
Happel, T. J.....	Trenton	Gibson	1871	1889	Univ. of New York	1882
Harden, J. A.....	Sweetwater	Monroe	1893	1895	Vanderbilt Univ.	1903
Hardin, J. O.....	Spring Hill	Maury	1867	1889	Univ. of Louisville	1903
Hardison, C. C.....	Lewisburg	Marshall	1890	1890	.....	1903
Hardison, J. A.....	Lewisburg	Marshall	1899	1899	.....	1903
Hardison, S. T.....	Lewisburg	Marshall	1877	1889	Univ. of Nashville	1878
Harrell, E. B.....	Unicoi	Unicoi	1907	1907	Tenn. Med. College	1908
Harrington, R. A.....	Nashville	Davidson	1886	1889	Univ. of Tennessee	1883

NAME.	POST OFFICE.	SOCIETY.	Grad'd	Licn'd.	ALMA MATER.	Joined
Harris, A. W.....	Nashville	Davidson ..	1901	1901	Vanderbilt Univ.	1903
Harris, J. E.....	Nashville	Davidson ..	1868	1889	Univ. of Nashville....	1869
Harris, J. H.....	Gadsden	Crockett	1895	1895	Vanderbilt Univ.	1903
Harris, Jno. S.....	Minor Hill	Giles	1894	.....	Vanderbilt Univ.	1901
Harris, W. H.....	Cold Spring	Bledsoe	1891	1907	Vanderbilt Univ.	1908
Harrison, J. J., Jr.	Loudon	Loudon	1883	.....	Chatt. Med. College..	1903
Harrison, W. B.....	Columbia	Maury	1856	1889	Univ. of Louisville....	1903
Harwell, J. R.....	Nashville	Davidson	1874	1889	Univ. of Nashville....	1879
Harwell, W. T.....	Brunswick	Shelby	1899	1899	Memp. Hos. Med. Col.	1908
Hasse, M.....	Memphis	Shelby	1893	1895	Memp. Hos. Med. Col.	1903
Hassell, T. H.....	Springfield	Robertson	1885	.....	Univ. of Louisville....	1905
Haskell, L. W.....	Memphis	Shelby	1905	1906	Johns Hopkins	1907
Haskins, E. T.....	Newbern	Dyer .....	.....	.....	.....	1908
Hatcher, J. W.....	Franklin	Williamson	1877	1889	Vanderbilt Univ.	1903
Haun, L. A.....	Coal Creek	Anderson	1902	1903	Tenn. Med. College..	1903
Havener, J. B.....	Troy	Obion	1901	1901	Vanderbilt Univ.	1903
Hawkins, H.....	Jackson	Madison	1899	1899	Vanderbilt Univ.	1903
Hawkins, H. W.....	Greeneville	Greene	1890	1889	Louisville Med. Coll.	1903
Hawkins, E. S.....	Cedar Hill	Robertson	1880	1907	Univ. of Louisville....	1907
Hayden, P. E.....	Nashville	Davidson .....	.....	.....	Univ. of the South....	1908
Hayes, J. T.....	Oliver Springs	Anderson	1901	1901	Univ. of Nashville....	1907
Haymore, G. P.....	Chattanooga	Hamilton	1892	1893	U. C. M., Richm'd, Va.	1905
Haynes, E. E.....	Memphis	Shelby	1891	1893	Memp. Hos. Med. Col.	1903
Hays, Geo. S.....	Jeraldstown	Greene	1892	.....	Univ. of Tennessee....	1903
Haywood, Jas. G.....	Brownsville	Haywood .....	.....	.....	.....	1902
Haywood, J. L.....	Columbia	Maury	1886	1889	Bellevue Hos. Med. Cl.	1903
Head, F. P.....	Nashville	Davidson	1899	1905	Vanderbilt Univ.	1906
Heard, F. C.....	Brownsville	Haywooo	1872	1889	Med. Coll. of Ala....	1902
Hefferman, J. L.....	Jellico	Campbell	1887	1889	Univ. Loulsv. Med. Cl.	1904
Henderson, P. L.....	Morristown	Hamblen .....	.....	.....	Bellevue Hos. Med. Cl.	1903
Henderson, Samuel.	Franklin	Williamson	1873	1889	Jefferson Med. Coll..	1903
Henning, B. G.....	Memphis	Shelby	1870	1889	Bellevue Hos. Med. Cl.	1890
Henning, D. M.....	Memphis	Shelby	1902	1900	Col. P. & S., N. Y....	1903
Hensley, T. C.....	Flag Pond	Unicoi	1906	1905	Tenn. Med. College..	1908
Herbert, R. N.....	Aspen Hill	Giles	1867	1889	Univ. of Nashville....	1903
Herring, E. B.....	Gainesville	Tipton	1888	1889	Vanderbilt Univ.	1906
Herron, J. T.....	Jackson	Madison	1884	1889	Jefferson Med. Col....	1890
Hess, F. P.....	Bells	Crockett	1901	1900	Memp. Hos. Med. Col.	1903
Hess, N. I.....	Bells	Crockett	1867	1889	St. Louis Med. Coll..	1903
Hubbet, W. E.....	Nashville	Davidson	1891	1891	Univ. of Tennessee....	1895
Hibbets, J. B.....	Obion	Obion	1889	1889	Bellevue Hos. Med. Cl.	1903
Hickman, T. J.....	Union City	Loudon .....	.....	.....	.....	.....
Hicks, G. P.....	Lenoir City	Carroll .....	.....	.....	.....	1904
Hicks, H. D.....	Hollow Rock	Anderson	1900	1900	Univ. of Tennessee....	1903
High, B. J.....	Clinton	Smith .....	.....	1889	.....	1904
Hill, C. L.....	Stonewall	Davidson	1888	1898	Univ. of Tennessee....	1903
Hill, O. W.....	Clifty	White	1907	1907	Univ. of Tennessee....	1904
Hill, J. F.....	Memphis	Shelby	1887	1890	Memp. Hos. Med. Col.	1903
Hill, J. S.....	Mt. Pleasant	Maury	1877	1889	Mo. Med. College....	1903
Hill, Lafayette	Covington	Tipton	1875	1889	Mo. Med. College....	1903
Hill, W. W.....	Cardiff	Roane .....	.....	.....	.....	1905
Hillsman, E. W.....	Trezevant	Carroll	1900	1900	Vanderbilt Univ.	1903
Hodge, S. H.....	Knoxville	Knox .....	.....	.....	.....	.....
Hogshead, J. Mc.....	Chattanooga	Hamilton	1902	.....	U. C. M., Richmond..	1905
Holder, E. M.....	Shelby	Shelby	1894	1894	Memp. Hos. Med. Col.	1902
Hollabaugh, A. N.....	Nashville	Davidson .....	.....	.....	.....	1903
Holland, E. F.....	Mulberry	Lincoln	1892	1892	Vanderbilt Univ.	1904
Holmes, E. M.....	Readyville	Cannon	1900	1900	Vanderbilt Univ.	1903
Holtzclaw, C.....	Chattanooga	Hamilton	1882	1889	Atlanta Med. Coll..	1884
Hope, W. T.....	Chattanooga	Hamilton	1873	1889	Bellevue Med. Coll..	1875
Hopper, J. D.....	Jackson	Madison	1892	1893	Ky. School of Med..	1898
Hornbrook, J. T.....	Dyersburg	Dyer .....	.....	.....	.....	1908
Horner, W. R.....	Clyde顿	Humphreys .....	.....	1889	.....	1903
House, S. J.....	Franklin	Williamson	1876	1889	Vanderbilt Univ.	1903
Howard, J. A.....	McConnell	Obion	1900	1901	Univ. of Tennessee....	1903
Howard, T. E.....	Trenton	Gibson	1906	1906	Vanderbilt Univ.	1906
Howard, W. A.....	Algood	Putnam .....	.....	.....	.....	.....
Howell, I.....	Darden	Henderson .....	.....	.....	.....	1903
Howell, W. E.....	Morristown	Hamblen	1903	1903	Tenn. Med. Coll..	1904
Howlett, K. S.....	Franklin	Williamson	1881	1889	Vanderbilt Univ.	1895
Hubbard, G. W.....	Nashville	Davidson	1878	1889	Univ. of Nashville....	1890
Hudson, Alberto	Nashville	Davidson	1897	1897	Univ. of Nashville....	1903

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd	ALMA MATER.	Joined
Hudson, D. A.	Melesus	Madison	1899	1900	Memp. Hos. Med. Col.	...
Hudson, H. P.	Brownsville	Haywood	...	1903	Memp. Hos. Med. Col.	1903
Huff, D. C.	Christiana	Rutherford	1877	1873	Vanderbilt Univ.	1903
Huffaker, J. R.	Sevierville	Sevier	1903	1903	Chatt. Med. College.	1903
Huffaker, R. O.	Chucky City	Greene	1892	...	Univ. of Louisville	1904
Huggins, J. I.	Oak Grove	Jefferson	1891	...	Tenn. Med. College.	1903
Hughes, M. L.	Clarksville	Montgomery	1897	1898	Univ. of Nashville	1903
Hughes, O. G.	Ooltewah	James	1900	1904	Chatt. Med. College.	1905
Hunt, J. C.	Nashville	Davidson	...	...	...	1903
Hunt, R. H.	Gibson	Gibson	1872	1889	Univ. of Nashville	1903
Hunter, R. C.	St. Bethlehem	Montgomery	...	...	...	...
Huntsman, W.	Juno	Henderson	1899	...	Univ. of Tennessee	1903
Hurt, S.	Brighton	Tipton	1903	1903	Univ. of the South	1906
Hutchinson, J. L.	Tiptonville	Lake	1889	1889	Vanderbilt Univ.	1898
Hyde, H. B.	Nashville	Davidson	1878	1889	Vanderbilt Univ.	1895
Hyder, R. L.	Isabella	Polk	1901	1901	Tenn. Med. College.	1903
Ingle, R. J.	Sevierville	Sevier	1905	1906	Tenn. Med. College.	1907
Isham, A. J.	Sevierville	Sevier	1901	1900	Univ. of the South	1903
Jacobs, A. G.	Memphis	Shelby	1897	1902	Univ. of Virginia	1903
Jacobson, H. B.	Memphis	Shelby	1901	1901	Memp. Hos. Med. Col.	1903
Jackson, V. P.	Nashville	Davidson	1899	1899	Univ. of Nashville	1908
Jamison, A. J.	Murfreesboro	Rutherford	1906	1905	Univ. of Nashville	1906
Jelks, Jno. L.	Memphis	Shelby	1892	1895	Memp. Hos. Med. Col.	1898
Jernigan, V. J.	Obion	Obion	1900	1900	Vanderbilt Univ.	1903
Johnson, C. H.	Lexington	Henderson	1890	...	Vanderbilt Univ.	1903
Johnson, J. B.	Knoxville	Knox	1905	1906	Univ. of Louisville	1907
Johnson, J. T.	Nashville	Davidson	1901	1901	Vanderbilt Univ.	1903
Johnson, Jos. W.	Chattanooga	Hamilton	1899	1890	Tulane University	1900
Johnson, T. L.	Greenbrier	Robertson	...	1889	Univ. of Nashville	1904
Johnson, W. M.	Grand Junction	White	1901	1901	Univ. of the South	1904
Johnston, E. C.	Chattanooga	Hamilton	1903	1904	Chatt. Med. College.	1905
Johnston, J. C.	Eastland	Hardeman	...	1903	Memp. Hos. Med. Col.	1906
Joiner, W. T.	Bedford	Gibson	...	...	...	1908
Jones, C. B.	Scarboro	Anderson	1898	1898	Ky. School of Med.	1907
Jones, E. H.	Murfreesboro	Rutherford	1892	1878	Univ. of Louisville	1897
Jones, Guy R.	Orlinda	Robertson	1905	1907	Univ. of Louisville	1906
Jones, Heber	Memphis	Shelby	1869	1889	Univ. of Virginia	1875
Jones, H. L.	Jackson	Madison	1901	1901	Univ. of Nashville	...
Jones, J. T.	Jackson	Madison	1870	1889	Washington Univ.	1903
Jones, Kennedy	Memphis	Shelby	1881	1889	Memp. Hos. Med. Col.	1904
Jones, R. L.	Nashville	Davidson	1901	1901	Vanderbilt Univ.	1904
Jones, S. L.	Knoxville	Knox	1894	1889	Univ. of Louisville	1903
Jones, T. apR.	Knoxville	Knox	1891	1904	Univ. of Michigan	1903
Joplin, W. S.	Petersburg	Lincoln	1900	1900	Memp. Hos. Med. Col.	1904
Kabler, W. F.	Knoxville	Knox	...	1903	Tenn. Med. College	1907
Kane, Elizabeth C.	Memphis	Shelby	1898	1898	Univ. of Nashville	1903
Keeton, W. B.	Scott's Hill	Henderson	1874	1889	Vanderbilt Univ.	1903
Keller, J. P.	Nashville	Davidson	1904	1904	Univ. of Nashville	1905
Kelly, N. W.	Covington	Tipton	1900	1900	Memp. Hos. Med. Col.	1903
Kelso, H. J.	Knoxville	Knox	1892	1891	Vanderbilt Univ.	1903
Kelty, E. T.	Bessie	Lake	1900	1900	Univ. of Nashville	...
Kennedy, J. M.	Knoxville	Knox	1870	1889	Univ. of Penn.	1903
Kennedy, W. T.	Johnson City	Washington	...	1901	...	1903
Kern, A. G.	Knoxville	Knox	...	1907	Univ. of Penn.	1905
Key, R. E.	Monoville	Smith	1904	1903	Univ. of Nashville	1904
Kibler, R. O.	Cleveland	Bradley	1897	1900	Chatt. Med. College.	1908
Kimbrough, R. M.	Harriman	Roane	1888	1889	Univ. of Tennessee	1905
Kincaid, H. B.	Memphis	Shelby	1890	1891	Univ. of Louisville	1904
Kincaid, Jno. H.	Knoxville	Knox	1897	...	Univ. of Michigan	1903
King, J. M.	Nashville	Davidson	1896	1896	Univ. of Nashville	1904
King, R. W.	Gordonsville	Smith	...	1889	...	1904
Kinney, DeLan.	Nashville	Davidson	1905	1905	Univ. of Tennessee	1906
Kinsey, F. M.	Ducktown	Polk	1890	1889	Vanderbilt Univ.	1903
Kinsey, L. E.	Ducktown	Polk	1888	1889	Chatt. Med. College.	1908
Kittrell, S. S.	Madisonville	Monroe	1896	1895	Vanderbilt Univ.	1903
Kittrell, W. H.	Mt. Pleasant	Maury	1886	1889	Vanderbilt Univ.	1903
Koffman, J. N.	Trenton	Gibson	1881	1889	Univ. of Nashville	1903
Krauss, Wm.	Memphis	Shelby	1889	1891	Memp. Hos. Med. Col.	1890
Kyle, A. G.	Knoxville	Knox	1900	1903	Memp. Hos. Med. Col.	1903
Lackey, J. B.	Ripley	Lauderdale	1907	1906	Vanderbilt Univ.	1908
Lackey, J. H.	Ripley	Lauderdale	1907	1906	Vanderbilt Univ.	1904
Lackey, W. K.	Ripley	Lauderdale	1889	1889	Vanderbilt Univ.	1903

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd.	ALMA MATER.	Joined
Lackey, W. N.	Gallatin	Sumner	1899	1900	Jefferson Med. Coll.	1904
Lacy, Geo.	Medon	Madison	1870	1889	Univ. of Louisville	1903
Lamdin, L.	Andersonville	Anderson	1900	1900	Univ. of Tennessee	1907
Lancaster, A. J.	Plsghah	Giles				1904
Lancaster, G. W.	Plsghah	Giles				1904
Landis, G. L.	Unionville	Bedford	1871	1889	Univ. of Penn.	1895
Lanter, Thos. L.	Portland	Sumner	1880	1889	Univ. of Tennessee	1904
Lanski, J.	Chattanooga	Hamilton	1906	1907	Tenn. Med. College	1907
Larrimore, H. P.	Chattanooga	Hamilton	1899	1899	Chatt. Med. College	1903
La Rue, J. A.	Pulaski	Giles				
Lawrence, W. S.	Memphis	Shelby				1906
Layman, R. B.	Knoxville	Knox	1898	1898	Univ. of Louisville	
Leake, E. K.	Colliersville	Shelby	1872	1889	Univ. of Virginia	1903
Lee, C. B.	Edgemore	Anderson	1884	1886	Southern Med. Coll.	1903
Lee, W. B.	Nashville	Davidson	1881	1889	Vanderbilt Univ.	1895
Lelper, J. L.	Lenoir City	Loudon	1898		Univ. of Louisville	1900
Leonard, Jno. W.	Cornersville	Marshall	1903	1903	Vanderbilt Univ.	1904
Leonard, N. C.	Nashville	Davidson	1890	1890		1903
Leonard, W. W.	Mt. Vernon	McMinn	1901			1908
Leroy, Louis	Memphis	Shelby	1896	1898	Med.-Chi. Col. of Phil.	1901
Lewis, J. R.	Ripley	Lauderdale	1904	1904	Memp. Hos. Med. Col.	1907
Lewis, A. C.	Memphls	Shelby	1904	1906	Geo. Washington Univ.	1907
Lewis, A. W.	McCay's	Polk	1901	1904	Univ. of Nashville	1904
Lewis, P. K.	Doyle Station	White	1901	1901	Univ. of the South	1904
Lewis, V. L.	Crossville	White	1903	1903	Univ. of Tennessee	1904
Lipscomb, J. A.	Memphis	Shelby	1865	1889	Med. Coll. of Virginia	1903
Litterer, Wm.	Nashville	Davidson	1901	1901	Vanderbilt Univ.	1903
Little, R. M.	Dresden	Weakley	1899	1900	Univ. of the South	1902
Livermore, Geo. R.	Memphis	Shelby	1899	1902	Univ. of Virginia	1903
Lockett, W. R.	Knoxville	Knox	1899	1901	Jefferson Med. College	1906
Logan, T. L.	Farmington	Marshall	1890	1890		1903
Lones, C. E.	Knoxville	Knox	1896	1897	Tenn. Med. College	1903
Long, Edwin A.	Johnson City	Washington	1891	1891	Univ. of Louisville	1903
Loring, B. F.	McMinnville	Warren	1902	1891	Univ. of Nashville	1906
Loring, C. A.	Smithville	DeKalb			Univ. of Tennessee	1908
Love, C. T.	Alamo	Crockett	1894	1895	Vanderbilt Univ.	1903
Love, Jno. B.	Tiptonville	Lake	1895	1895	Memp. Hos. Med. Col.	1903
Lovell, C. M.	Dickson	Dickson	1876	1889	Vanderbilt Univ.	1878
Lusk, G. A.	Ripley	Lauderdale	1881	1889	Vanderbilt Univ.	1903
Lusk, P. B.	Jackson	Madison	1884	1898	Tulane University	1903
Luttrell, Walter	Knoxville	Knox	1893	1903	Georgetown Med. Coll.	
McAuley, L. D.	Oakland	Fayette	1880	1889	Univ. of Louisville	1903
McBride, J. W.	Covington	Tipton	1896	1900	Memp. Hos. Med. Col.	1903
McCabe, W. M.	Nashville	Davidson	1903	1903	Vanderbilt Univ.	1905
McCall, Jas. H.	Huntingdon	Carroll	1896	1902	Vanderbilt Univ.	1906
McCall, J. W.	Huntingdon	Carroll	1859	1889	Univ. of Nashville	1896
McCallie, W. A.	Knoxville	Knox	1876	1889	Vanderbilt Univ.	
McCormbell, H. H.	Knoxville	Knox	1898	1900	Univ. of Tennessee	1904
McCormbell, W. E.	Nashville	Davidson	1881	1889	Univ. of Tennessee	1881
McClain, G. A.	Johnson City	Washington	1891		Vanderbilt Univ.	1906
McClain, H. T.	Mooreburg	Knox	1906	1906		
McClain, W. A.	Sweetwater	Monroe	1899	1901	Univ. of Nashville	1903
McClintock, F. A.	Newcomb	Campbell	1895	1889	Tenn. Med. College	1904
McCollum, C. W.	Midway	Greene	1891		Louisville Med. Coll.	1908
McCollum, J. A.	Tariffville	Monroe	1894	1895	Grant University	
McCown, O. S.	Memphls	Shelby	1899	1900	Memp. Hos. Med. Col.	1902
McCown, R. W.	Knoxville	Knox	1906	1906	Univ. of Nashville	1907
McCoy, A.	Jackson	Madison	1888	1899	Jefferson Med. College	1903
McDonald, S. E.	Bells	Crockett	1905	1904	Univ. of Louisville	1906
McDonald, W. P.	Spring City	Rhea	1890		Chatt. Med. College	1904
McElroy, J. B.	Memphis	Shelby	1893	1904	Col. of P. & S., Balt.	1904
McFall, R. J.	Cumberland City	Montgomery	1892	1893	Vanderbilt Univ.	1904
McGannon, M. C.	Nashville	Davidson	1885	1897	McGill University	1896
McGill, T. M.	Norma	Scott	1906	1906	Tenu. Medcal College	1908
McGinnes, I. L.	Pikeville	Bledsoe	1899	1903	Chatt. Med. College	1908
McGhee, Jno. B.	Chattanooga	Hamilton	1894	1895	Chatt. Med. College	1903
McGhee, J. L.	Memphis	Shelby	1901	1902	Memp. Hos. Med. Col.	1903
McGregor, H. C.	New Providence	Montgomery	1906	1906	Vanderbilt Univ.	1908
McIlvain, E. S.	Nashville	Davidson	1905	1905	Vanderbilt Univ.	1906
McKamy, T. J.	Cleveland	Bradley	1898		Univ. of Nashville	1899
McKenzie, J. E.	Bedford	Gibson	1891	1889	Vanderbilt Univ.	1908
McKenzie, J. S.	Bedford	Gibson	1886	1889	Vanderbilt Univ.	1908

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd	ALMA MATER.	Joined
McKinney, Richm'd.	Memphis	Shelby	1894	1895	Memp. Hos. Med. Col.	1899
McLean, J. L.	Memphis	Shelby	1875	1902	Univ. of Louisville.	1903
McMahon, —	Memphis	Shelby				
McNabb, C. P.	Knoxville	Knox	1884	1889	Univ. of Tennessee.	1903
McNeil, E. K.	Jackson	Madison	1894	1899	Columbian Univ.	1902
McPhitridge, J. D.	Fincastle	Campbell	1897	1902	Tenn. Med. College.	1905
McReady, F. S.	Petersburg	Lincoln	1880	1889	Univ. of Louisville.	1897
McRee, W. C.	Trenton	Gibson	1907	1907	Vanderbilt Univ.	1908
McSwain, I. A.	Paris	Henry	1879	1889	Vanderbilt Univ.	1894
McSwain, J. Horace	Paris	Henry	1896		Vanderbilt Univ.	1903
McWilliams, J. M.	Fayetteville	Lincoln	1901	1901	Vanderbilt Univ.	1901
Macon, R. B.	Clarksville	Montgomery	1898	1898	Vanderbilt Univ.	1899
Maddin, Jno. W.	Nashville	Davidson	1856	1889	Univ. of Nashville.	1893
Maddin, J. Wesley	Nashville	Davidson	1886	1889	Vanderbilt Univ.	1895
Maddin, Thos. L.	Nashville	Davidson	1849	1889	Univ. of Louisville.	1853
Magan, Lillian E.	Nashville	Davidson	1900	1906	University of Chicago.	1907
Malone, Battle	Memphis	Shelby	1899	1899	Memp. Hos. Med. Col.	1902
Malone, F. M.	Capleville	Shelby	1903		Memp. Hos. Med. Col.	1908
Malone, G. B.	Memphis	Shelby	1872	1889	Wash. Med. School.	1903
Manard, J. J.	Morristown	Hamblen	1895	1896	Tenn. Med. College.	1906
Mann, Robt.	Memphis	Shelby				1906
Marable, T. H.	Clarksville	Montgomery	1878	1889	Univ. of New York.	1880
Marr, Harrington	Nashville	Davidson	1896	1897	Vanderbilt Univ.	1903
Marshall, Jno. C.	Chucky City	Greene	1894	1899	Louisville Med. Coll.	1903
Marshall, W. C.	Chattanooga	Hamilton	1890	1891	Ohio Med. College.	1907
Marshall, W. R.	Cleveland	Bradley	1887	1889	Vanderbilt Univ.	1908
Martin, C. P.	Cookeville	Putnam	1900	1900	Vanderbilt Univ.	1904
Martin, C. T.	McMinnville	Warren	1899	1900	Univ. of Nashville.	1904
Martin, H. C.	Cookeville	Putnam		1889	Vanderbilt Univ.	1904
Martin, J. B. S.	Cookeville	Putnam		1889	Vanderbilt Univ.	1904
Massey, Jno. F.	Knoxville	Knox	1903	1903	Tenn. Med. College.	
Massey, Z. D.	Sevierville	Seyler		1889		1908
Matlock, P. N.	Mason Hall	Obion	1867	1889	Univ. of Tennessee.	1903
Matthews, R. L.	Springfield	Robertson	1907	1907	Vanderbilt Univ.	1907
Matthews, E. C.	Fruitland	Gibson	1906	1905	Vanderbilt Univ.	1907
Matthews, W. J.	Johnson City	Washington	1892	1894	Col. of P. & S., Balti.	1903
Maury, Jno. M.	Memphis	Shelby	1890	1892	Univ. of Penn.	1903
Maury, R. B.	Memphis	Shelby	1857	1889	Univ. of Virginia.	1880
Maxwell, E. G.	Cottage Grove	Henry				
May, J. P.	Elkton	Giles				1904
Meacham, J. W.	Clarksville	Montgomery	1884	1889	Univ. of Louisville.	1903
Meadors, Joe F.	Nashville	Davidson				1905
Medling, W. L.	Dyer	Gibson	1904	1904	Vanderbilt Univ.	1906
Meredith, A. O.	Pikeville	Bledsoe	1906	1908	Cleveland P. & S.	1908
Meux, G. W.	Memphis	Shelby			Vanderbilt Univ.	
Meyer, L. L.	Memphis	Shelby	1897	1898	Bellevue Hos. Med. Cl.	1903
Michle, W. T.	Memphis	Shelby	1897	1901	Univ. of Virginia.	1903
Miller, E. S.	Johnson City	Shelby	1897	1901	Univ. of Penn.	1893
Miller, J. E.	Rogersville	Washington	1869	1889	Univ. of Penn.	
Miller, J. P.	Nashville	Davidson	1898	1900	Univ. of Penn.	1903
Miller, R. C.	Evensville	Rhea	1899	1898	Vanderbilt Univ.	1904
Miller, S. M.	Knoxville	Knox	1876	1889	Ky. School of Med.	1903
Miller, S. R.	Knoxville	Knox	1893	1895	Vanderbilt Univ.	1896
Miller, W. D.	Ripley	Lauderdale	1902	1902	Memp. Hos. Med. Col.	1903
Miller, W. J.	Johnson City	Washington	1877	1889	Vanderbilt Univ.	1878
Milligan, S. A.	Knoxville	Knox	1905	1905	Tenn. Med. College.	
Milstead, H. E.	Cranesville	Hardeman			Memp. Hos. Med. Col.	1903
Minor, J. L.	Memphis	Shelby	1876	1889	Univ. of Virginia.	1886
Minter, N. J.	Chattanooga	Hamilton	1895	1898	Tenn. Med. College.	1905
Mitchell, E. D.	Memphis	Shelby	1898	1899	Univ. of Penn.	1903
Mitchell, R. H.	Memphis	Shelby	1897	1898	Univ. of Penn.	1899
Mitchell, W. W.	Greenfield	Weakley	1898	1903	Univ. of Tennessee.	1902
Moffitt, C. D.	Lewisburg	Marshall				1908
Moody, A. H.	Dyersburg	Dyer	1904		Memp. Hos. Med. Col.	1906
Moody, G. W.	Shelbyville	Bedford	1869	1889	Univ. of Penn.	1875
Moody, O. N.	Tennessee City	Dickson	1883	1883	Univ. of Nashville.	1906
Mooney, C. F.	Knoxville	Knox	1900	1901	Univ. of Louisville.	1903
Mooneyham, E. L.	Rock Island	Warren	1902	1903	Chatt. Med. College.	1904
Moore, A. C.	Springfield	Robertson	1891	1907	Vanderbilt Univ.	1907
Moore, Alfred	Memphis	Shelby	1895	1895	Memp. Hos. Med. Col.	1902
Moore, J. C.	Trenton	Gibson	1881	1889	Jefferson Med. Coll.	1881
Moore, J. E.	Springfield	Robertson	1859	1889	Univ. of Nashville.	1905

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Lic'd	ALMA MATER.	Joined
Moore, J. T.	Algood	Putnam	1899	1902	Univ. of Tennessee	1904
Moore, J. W.	Nashville	Davidson	1904	1904	Vanderbilt Univ.	1903
Moore, Moore	Memphis	Shelby	1898	1898	Memp. Hos. Med. Col.	1903
Morgan, H. W.	Nashville	Davidson	.....	1889	Vanderbilt Univ.	1903
Morris, D.	Chattanooga	Hamilton	1905	1905	Univ. of the South	1906
Morrissey, P. G.	Nashville	Davidson	1903	1903	Univ. of Nashville	1904
Morrison, C. R.	Rutherford	Gibson	.....	.....	.....	1907
Morrison, W. J.	Nashville	Davidson	.....	.....	.....	1903
Morton, Jas. L.	Shelbyville	Bedford	1903	1903	Univ. of Tennessee	1905
Morton, J. H.	Knoxville	Knox	1888	1896	Univ. of Tennessee	.....
Mulherron, C. R.	Ripley	Lauderdale	1905	1903	Univ. of Tennessee	1904
Mulherron, G. G.	Ripley	Lauderdale	1901	1902	Memp. Hos. Med. Col.	1901
Murfree, Jas B.	Murfreesboro	Rutherford	1859	1889	Jefferson. Med. Coll.	1860
Murray, L. L.	Estella	Marshall	.....	.....	.....	.....
Musgraves, Guy W.	Brownsville	Haywood	.....	1904	.....	1904
Myers, E. M.	Bull's Gap	Greene	1895	.....	.....	1908
Nash, C. T.	Dyersburg	Dyer	.....	.....	.....	1903
Nash, W. S.	Knoxville	Knox	1889	1894	Univ. of Michigan	1903
Nease, H. L.	Pleasant Grove	Bedford	1898	1898	Vanderbilt Univ.	.....
Nebblett, L. L.	Cumb. Furnace	Montgomery	1900	1900	Vanderbilt Univ.	.....
Nebblett, S. E.	Southside	Montgomery	1890	1891	Univ. of Nashville	.....
Noblett, B. E.	Booneville	Lincoln	1891	1889	Vanderbilt Univ.	.....
Neely, J. J.	Bolivar	Hardeman	1892	1889	Bellevue Hos. Med. Cl.	1903
Nefe, A. A.	Lookout Mtn.	Hamilton	1878	1889	Cincin. Col. Med. Sur.	1907
Neil, D. R.	Nashville	Davidson	1895	1895	Vanderbilt Univ.	1897
Nelson, J. E.	Rockwood	Anderson	1890	1890	Univ. of Nashville	1903
Nelson, Joe R.	Eureka	Haywood	1882	1889	Univ. of Louisiana	1902
Nelson, R. B.	Jackson	Madison	1903	1903	Vanderbilt Univ.	.....
Nethery, J. T.	Yorkville	Gibson	1891	1892	Vanderbilt Univ.	1904
Newman, A. T.	Jellico	Campbell	1890	1889	Tenn. Med. College	1904
Newman, N. R.	Bride	Tipton	1899	1900	Vanderbilt Univ.	1903
Newman, R. H.	Knoxville	Knox	1905	1906	Univ. of Louisville	.....
Newman, R. L.	Dyer	Gibson	1907	1907	Univ. of Tennessee	1908
Nichol, A. G.	Nashville	Davidson	1898	1898	Univ. of Nashville	1903
Nolen, B. T.	Franklin	Williamson	1906	1905	Vanderbilt Univ.	1907
Nolen, W. L.	Salem, Va.	Hamilton	1890	1891	Univ. of New York	1893
Norris, Andrew	Centerville	Hickman	1860	1889	Univ. of Nashville	1904
Northcutt, E. E.	McMinnville	Warren	1904	1903	Vanderbilt Univ.	1904
Norvelle, J. C.	Hanley	Haywood	1901	.....	Memp. Hos. Med. Col.	1903
Nowlin, J. S.	Shelbyville	Bedford	1859	1889	Univ. of Nashville	1868
Noyes, A. P.	Chattanooga	Hamilton	1906	1907	Univ. of Penn.	1907
Nunn, J. H.	Chestnut Bluff	Crockett	1885	1889	Univ. of Louisville	1902
Oden, S. F.	Brentwood	Williamson	1873	1889	Univ. of Nashville	1903
Officer, M. E.	Carthage	Smith	1903	1904	Ky. School of Med.	1904
Officer, W. C.	Monterey	Putnam	1902	1902	Univ. of Tennessee	1904
Ogle, A. W.	Knoxville	Knox	1902	1904	Univ. of the South	1905
Ogle, P. A.	Roddy	Sevier	.....	1907	.....	.....
Ogle, W. S.	Knoxville	Knox	1898	1898	Tenn. Med. College	1903
Oliver, A. B.	Memphis	Shelby	1893	1894	Memp. Hos. Med. Col.	1903
Oliver, G. W.	Medina	Gibson	1900	1900	Univ. of Nashville	1904
O'Callahan, W. J.	Nashville	Davidson	1904	1904	Univ. of Tennessee	1905
Omohundro, O. C.	Nashville	Davidson	1890	1891	Univ. of Nashville	1887
O'Neal, M. E.	Bells	Crockett	1907	.....	Memp. Hos. Med. Col.	1908
Oppenheimer, R. P.	Knoxville	Knox	1890	1894	Va. Med. College	1903
Orr, W. M.	Bellebuckle	Bedford	1882	1889	Vanderbilt Univ.	1895
Overton, Jno.	Nashville	Davidson	1905	1905	Vanderbilt Univ.	1908
Padgett, Hazel	Nashville	Davidson	1892	1892	Univ. of Penn.	1903
Paget, D. W.	Lenoir City	Loudon	1900	1901	Chatt. Med. College	1905
Painter, F. F.	Morristown	Hamblen	1900	1900	Vanderbilt Univ.	1907
Pangle, H. G.	Russellville	Hamblen	1879	1889	Vanderbilt Univ.	1904
Parker, J. B.	Knoxville	Knox	1895	1896	Univ. of Louisville	.....
Parker, Jno. R.	Bethpage	Sumner	1892	1896	Univ. of Louisville	1904
Parker, W. B.	Smithville	DeKalb	.....	1892	Vanderbilt Univ.	1908
Parker, W. W.	Smithville	DeKalb	.....	1907	Vanderbilt Univ.	1908
Paschall, A. F.	Crossland, Ky.	Henry	1890	.....	Univ. of Louisville	1903
Paschall, G. C.	Arrington	Williamson	1890	1890	Univ. of Louisville	1903
Patton, E. W.	Litton	Bledsoe	1908	1907	Univ. of Nashville	1908
Patton, J. S.	Brownsville	Haywood	1869	1889	Bellevue Hos. Med. Cl.	1902
Pearce, D. M.	Union City	Oblow	1870	1892	Bellevue Hos. Med. Cl.	1903
Pearler, G. M.	Bristol	Sullivan	1889	.....	Hosp. Col. of Louisv.	1906
Pearson, M. M.	Bristol	Sullivan	1889	1889	Hosp. Col. of Louisv.	1906
Feeeden, E. F.	Portland	Sumner	1900	1900	Univ. of Nashville	1906

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Lien d.	ALMA MATER.	Joined
Pendergrast, L. H.	Memphis	Shelby	1902	1907	Memp. Hos. Med. Col.	1908
Penland, S. N.	Madisonville	Monroe	1889	1889	Vanderbilt Univ.	1903
Penn, B. S.	Humboldt	Gibson	1893	1894	Vanderbilt Univ.	1903
Penn, G. W.	Humboldt	Gibson	1884	1889	Vanderbilt Univ.	1903
Perkins, I. E.	Henderson	Chester	1891		Vanderbilt Univ.	1903
Perkins, I. W.	Henderson	Chester	1882	1889	Vanderbilt Univ.	1889
Perry, R. J.	Springville	Henry	.....	1900	.....	1903
Perry, R. S.	Columbia	Maury	1894		Univ. of Nashville	1903
Peters, N. S.	Bristol	Sullivan	1900	1902	Hosp. Col. of Louisv.	1906
Phelps, J. A.	Jordan, Ky.	Obion	1900	1902	Univ. of Tennessee	1903
Phillips, E. S.	Rockwood	Roane	1898	1898	Vanderbilt Univ.	1903
Phillips, T. H.	Briceville	Anderson	1905	1904	Vanderbilt Univ.	1906
Phillips, T. L.	Robbins	Scott	1908	1908	Tenn. Medical Coll.	1908
Pickens, D. R.	Nashville	Davidson	1907	1907	Vanderbilt Univ.	1908
Pillow, Robert	Columbia	Maury	1874	1889	Univ. of Penn.	1891
Pistole, W. H.	Memphis	Shelby	.....		
Pittman, J. E.	Chattanooga	Hamilton	1896	1896	Univ. of Georgia	1907
Pitts, Rufus	Murfreesboro	Rutherford	1901	1902	Univ. of the South	1903
Plunket, J. D.	Nashville	Davidson	1863	1889	Univ. of Penn.	1867
Pomeroy, E. H.	Monterey	Putnam	.....	1905	Univ. of Michigan	1905
Pollard, T. G.	Nashville	Davidson	1904	1904	Univ. of Nashville	1907
Porter, A. R.	Memphis	Shelby	1884	1896	Univ. of Louisville	1903
Porter, J. A.	Ripley	Lauderdale	1894	1894	Vanderbilt Univ.	1903
Porter, O. J.	Columbia	Maury	1890	1890	Univ. of Nashville	1903
Potter, T. J.	Smithville	DeKalb	.....	1900	Univ. of Nashville	1908
Porter, W. W.	Springfield	Robertson	1892	1895	Univ. of Tenn.	1903
Posert, Henry	Memphis	Shelby	1889	1892	Mo. Med. Col.	1903
Potter, W. W.	Westbourne	Campbell	1904	1904	Univ. of Tenn.	1908
Powell, Jas. B.	Nashville	Davidson	1879	1889	Vanderbilt Univ.	1905
Powell, J. L.	Friendship	Crockett	1899	1899	Univ. of Tenn.	1903
Prather, P. W.	Woodland Mills	Obion	1906	1907	Univ. of Louisville	1908
Preston, J. H.	Humboldt	Gibson	1879	1889	Vanderbilt Univ.	1897
Price, Geo. H.	Nashville	Davidson	1888	1889	Vanderbilt Univ.	1889
Price, J. W.	Memphis	Shelby	1894	1903	Univ. of Va.	1903
Quinn, E. A.	Cleveland	Bradley	1890	1890	Vanderbilt Univ.	1904
Ragsdale, L. E.	Williamsport	Maury	1897	1898	Bellevue Hos. Med. C.	1903
Rain, C. W.	Knoxville	Kuox	1904	1905	N. W. Med. Col.	1905
Raines, J. T.	Malesus	Madison	1874	1889	Vanderbilt Univ.	1903
Raines, J. T., Jr.	Malesus	Madison	1906	1906	Memphis Hos. Med. C.	1908
Raines, N. F.	Memphis	Shelby	1879	1884	Col. of P. & S., Balt.	1903
Ramer, D. W.	Springfield	Robertson	1874	1889	Univ. of Nashville	1905
Ramsey, A. B.	McMinnville	Warren	1884	1891	Vanderbilt Univ.	1904
Ramsey, G. A.	Cleveland	Bradley	1885			1904
Ransom, W. C.	Farmington	Marshall	1881	1889		1884
Rathmell, J. R.	Chattanooga	Hamilton	1883	1889	Stirling Med. Col.	1889
Rawls, E. L.	Dyersburg	Dyer	1903	1904	Memphis Hos. Med. C.	1904
Rawles, Isaac N.	Finley	Dyer	1880	1889	Vanderbilt Univ.	1903
Rawlins, J. S.	Dancyville	Haywood	1867	1889	Univ. of Pa.	1902
Ray, R. L.	Monterey	Putnam	1892	1902	Univ. of Tenn.	1904
Ray, W. D.	Memphis	Shelby	1894	1907	Memphis Hos. Med. C.	1908
Read, R. W.	Blackman	Rutherford	1883	1880	Univ. of Tenn.	1889
Reagor, F. B.	Shelbyville	Bedford	1890	1889	Univ. of Tenn.	1895
Redmond, W. T.	Crockett Mills	Crockett	1898	1908	Memphis Hos. Med. C.	1903
Rees, H. C.	Murfreesboro	Rutherford	1898	1898	Vanderbilt Univ.	.....
Reese, Homer E.	Gallatin	Sumner	1901	1901	Vanderbilt Univ.	1904
Reeve, N. H.	Bristol	Sullivan	1874	1889	Univ. of Nashville	1906
Reeves, J. H.	Springfield	Robertson	1890	1891	Univ. of Tenn.	1905
Reid, T. E.	Lewisburg	Marshall	1877	1889	.....	1903
Reisman, E. E.	Chattanooga	Hamilton	1906	1906	Univ. of Tenn.	1908
Reville, D.	Maury City	Crockett	1887	1889	Univ. of Louisville	1903
Rhea, B. S.	Bon Air	White	1901	1901	Vanderbilt Univ.	1906
Rhodes, P. T.	Howell	Lincoln	1890	1900	Vanderbilt Univ.	1908
Rice, Jno. C.	Braden	Tipton	1902	1902	Memphis Hos. Med. C.	1903
Richards, A. F.	Sparta	White	1893	1895	Univ. of Tenn.	1904
Richards, J. M.	Sale Creek	Hamilton	1902	1903	Chattanooga Med. C.	1905
Richards, W. D.	Briceville	Anderson	1906	1905	Vanderbilt Univ.	1907
Richardson, J. D.	Fowlkes	Dyer	1900	1900	Memphis Hos. Med. C.	1903
Richmond, W. D.	Knoxville	Knox	1903	1900	Univ. of Pa.	1905
Rickman, J. K.	Chapel Hill	Marshall	.....			1907
Ristline, C. E.	Knoxville	Knox	1870	1889	Univ. of Pa.	1903
Roane, Holmes	Covington	Tipton	1904	1904	Memphis Hos. Med. C.	1905
Robbins, C. D.	Gordonsville	Smith	.....			1908

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licen'd.	ALMA MATER.	Joined
Robbins, M. M.....	Jellico	Campbell ..	1901	1901	Tenn. Med. Col.	1906
Roberts, Deering J.	Nashville	Davidson ..	1860	1889	Univ. of Nashville....	1875
Roberts, Jno.	Kingston	Roane	1898	1898	Tenn. Med. Col.	1903
Roberts, T. M.	Sweetwater	Monroe	1894	1895	Ky. School of Med.	1903
Roberts, W. S.	Jefferson City	Jefferson		1896	.....	1903
Roberts, W. F.	Troy	Obion	1894	1896	Univ. of Tenn.	1903
Robertson, C. A.	Nashville	Davidson	1890	1890	Vanderbilt Univ.	1901
Robertson, C. W.	Somerville	Fayette	1873	1889	Belleview Hos. M. C.	1903
Roby, A. J.	Tabernacle	Tipton	1889	1889	Univ. of Nashville....	1906
Rochelle, W. F.	Jackson	Madison	1882	1889	Vanderbilt Univ.	1883
Rodgers, Chas. W.	Como	Henry	1880	1889	Vanderbilt Univ.	1903
Rogers, K. E.	Ducktown	Polk	1907	1907	Univ. of Nashville....	1909
Rogers, W. B.	Memphis	Shelby	1878	1859	Belleview Hos. M. C.	1878
Rosamond, J. H. E.	Memphis	Shelby	1892	1892	Louisville Med. Col.	1906
Rose, J. L.	Jellico	Campbell	1879	1889	Hos. Col of Louisville	1906
Rose, Wm. B.	LaFollette	Campbell	1885	1889	Louisville Med. Col.	1904
Royster, Wm.	Turnersville	Robertson .....			.....	1908
Rozzle, J. H.	Gibson	Gibson	1902	1902	Univ. of Tenn.	1903
Ruble, H. H.	Greenville	Greene	1893	1894	Univ. of Tenn.	1903
Ruble, W. G.	Morristown	Hamblen	1904	1905	Ky. School of Med.	1907
Rucker, J. J.	Murfreesboro	Rutherford	1869	1889	Univ. of Pa.	1903
Rucker, S. T.	Memphis	Shelby .....			.....
Rudisill, A. W.	Memphis	Shelby	1891	1891	Memp. Hos. Med. Col.	1903
Rule, A. L.	Knoxville	Knox .....			.....
Runyon, F. J.	Clarksville	Montgom'y	1884	1889	Univ. of Louisville....	1889
Rupe, R. B.	Weakley	Giles .....			.....
Russell, G. T.	Athens	Bradley	1889	1889	Vanderbilt Univ.	1907
Sale, W. H. W.	Covington	Tipton	1876	1889	Tulane Univ.	1897
Saliba, J. A.	Athens	Monroe .....			.....
Sanders, E. M.	Nashville	Davidson	1904	1904	Univ. of Nashville....	1908
Sanders, J. F.	Friendship	Crockett	1889	1889	Rush Med. Col.	1903
Sanders, R. E.	Walter Hill	Rutherford	1886	1886	Vanderbilt Univ.	1904
Sanford, J. W.	Ripley	Lauderdale	1886	1889	Memp. Hos. Med. Col.	1903
Sanford, W. C.	Hening	Lauderdale	1904	...	Memp. Hos. Med. Col.	1904
Sasser, J. D. Sr.	Middleton	Hardeman	1876	1889	Univ. of Louisville....	1885
Sauls, D. K.	Memphis	Shelby .....			.....
Saunders, D. D.	Memphis	Shelby	1856	1889	Univ. of New York....	1890
Savage, G. C.	Nashville	Davidson	1878	1889	Jefferson Med. Col.	1886
Savage, G. H.	Memphis	Shelby	1898	1898	Vanderbilt Univ.	1905
Scates, D. W.	Martin	Weakley	1879	1889	Jefferson Med. Col.	1902
Schoff, J. S.	Chattanooga	Hamilton	1882	1892	Belleview Med. Col.	1903
Schultz, M. A.	Memphis	Shelby	1902	1902	Memp. Hos. Med. Col.	1904
Scott, G. T.	Curve	Lauderdale	1906	1906	Memp. Hos. Med. Col.	1907
Scott, L. M.	Jellico	Campbell	1885	1903	Univ. of Louisville....	1904
Scott, W. S.	Dickson	Dickson	1876	1889	Vanderbilt Univ.	1889
Scott, Miles.	Barren Plains	Robertson			Vanderbilt Univ.	1905
Scruggs, A. D.	Sweetwater	Monroe	1867	1889	Jefferson Med. Col.	1903
Seitz, Albert	McMinnville	Warren	1890	1890	Vanderbilt Univ.	1904
Seils, G. J.	Johnson City	Washington	1905	1906	Geo Washington Univ.	1908
Sevier, Jno. H.	Brownsville	Haywood	1885	1889	Vanderbilt Univ.	1902
Sewell, J. A.	Rockwood	Roane	1879	1889	Col. of P. & S., Balt.	1903
Seymore, Joe T.	Eurekaton	Haywood .....			.....
Sharber, A. L.	Nashville	Davidson	1904	1904	Univ. of Tennessee....	1906
Shannon, J. D.	Greenfield	Weakley	1890	1904	Univ. of Louisville....	1902
Shannon, J. E.	Sharon	Weakley	1889	1889	Univ. of Louisville....	1902
Shannon, J. O.	Franklin	Williamson	1901	1902	Vanderbilt Univ.	1903
Shannon, T. G.	Nashville	Davidson	1855	1889	Univ. of Nashville....	1903
Sharp, G. E.	Trundle's N Rd.	Sevier	1880	1889	Belleview Hos. Med. Cl.	1903
Sharp, J. B.	Obion	Obion	1883	1889	Vanderbilt Univ.	1903
Sharp, W. T.	Shelbyville	Bedford	1889	1905	Vanderbilt Univ.	
Shearer, M. D.	Tellico Junction	McMinn	1905	1905	Univ. of Nashville....	1907
Sheddan, Leon	Fayetteville	Lincoln	1893	1895	Univ. of Tenn.	1904
Shields, D. E.	Morristown	Hamblen			Vanderbilt Univ.	1903
Shipley, Z. L.	Cookeville	Putnam	1902	1903	Grant Univ.	1904
Shugart, John L.	Cleveland	Bradley	1889	1889	.....	1904
Shultz, Herman W.	Nashville	Bradley	1898	1907	Chatt. Med. Col.	1905
Sifford, W. R.	Nashville	Davidson	1894	1895	Univ. of Tenn.	1903
Siler, M. E.	Mercer	Madison	1875	1889	Univ. of Louisville....	
Sims, P. D.	Chattanooga	Hamilton	1856	1889	Univ. of Nashville....	1906
Simpson, W. L.	Memphis	Shelby	1869	1889	Col. P. & S. N. Y.	1886
Sinclair, A. G.	Memphis	Shelby	1881	1889	So. Med. Col.	1899
Sisk, J. A.	Knoxville	Knox	1881	1889	.....

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd	ALMA MATER.	Joined
Slayden, J. D.	Clarksville	Montgomery	1869	1889	Jefferson Med. Col.	1889
Slayden, T. J.	River Side	Hickman	1898	1898	.....	1904
Slayden, W. W.	Waverly	Humphreys	1898	1898	Univ. of the South.	1903
Smith, F. T.	Chattanooga	Hamilton	1882	1889	Univ. of Michigan	1887
Smith, H. A.	Knoxville	Knox	1892	1894	Tenn. Med. Col.	1903
Smith, J. N.	Cuba Landing	Humphreys	1891	1891	Univ. of Tenn.	1903
Smith, Larkin	Nashville	Davidson	1888	1889	Univ. of Nashville	1903
Smith, P. A.	Ridgely	Lake	1906	1906	Memp. Hos. Med. Col.	1907
Smith, R. E. Lee	Doyle Station	White	1886	1889	Univ. of Tenn.	1904
Smith, S. B.	Murfreesboro	Rutherford	1898	1898	Univ. of the South.	1906
Smith, T. L.	Morristown	Hamblen	1895	1899	Grant Univ. Chatt.	1908
Snyder, S. B.	Jellico	Campbell	1901	1901	Louisville Med. Col.	1906
Sory, L. F.	Adams	Robertson	1898	1907	Univ. of Nashville	1907
Spence, W. G.	Chestnut Bluff	Crockett	1903	1903	Memp. Hos. Med. Cl.	1906
Smythe, F. D.	Memphis	Shelby	1891	1897	Tulane Univ.	1903
Sory, B. B.	Cedar Hill	Robertson	1893	1894	Vanderbilt Univ.	1906
Springer, G. W.	Hohenwald	Hickman . . . . .	.....	.....	.....	1904
Stanley, J. B.	Memphis	Shelby	1904	1905	Memp. Hos. Med. Cl.	1906
Stanley, R. S.	Memphis	Shelby	1876	1895	Univ. of Louisville	1903
Stapp, F. B.	Chattanooga	Hamilton	1884	1889	Bellevue Med. Col.	1903
Starnes, C. W.	Greeneville	Greene	1900	1899	Maryland Med. Col.	1907
Steele, J. B.	Chattanooga	Hamilton	1905	1905	Chatt. Med. Col.	1905
Steele, N. C.	Chattanooga	Hamilton	1873	1889	Univ. of Nashville	1887
Stephens, Jas. B.	Nashville	Davidson	1857	1889	Univ. of Nashville	1866
Stephens, Jno. Bun.	Nashville	Davidson	1869	1889	Univ. of Nashville	1868
Stephenson, C. V.	Centerville	Hickman	1894	.....	Vanderbilt Univ.	1895
Stevens, J. W.	Nashville	Davidson	1900	1900	Univ. of Nashville	1908
St. John, M. B.	Bristol	Sullivan	1903	1904	Hos. Col. of Louisville	1906
Stonestreet, R.	Nashville	Davidson	1891	1891	Univ. of Nashville	1891
Sugg, Jno. A.	McEwen	Humphreys	1900	1900	Univ. of Nashville	1903
Sugg, W. J.	Dickson	Dickson	1897	1897	Univ. of Nashville	1903
Sullivan, C. C.	Nashville	Davidson	1892	1892	Vanderbilt Univ.	1897
Sullivan, E. G.	Sparta	White . . . . .	.....	.....	.....	1904
Sullivan, N. H.	Covington	Tipton	1906	1906	Memp. Hos. Med. Col.	1907
Sullivan, R. P.	Cleveland	Bradley	1907	1898	Chatt. Med. Col.	1904
Sullivan, W. O.	Newbern	Dyer	1897	1897	Univ. of Nashville	1903
Summers, W. P.	Molino	Lincoln	1905	1905	Univ. of Nashville	1905
Sumpter, E. R.	Pulaski	Giles	1901	.....	Univ. of Tenn.	1905
Sumpter, W. D.	Nashville	Davidson	1894	1895	Univ. of Va.	1897
Sutton, J. Q.	Chattanooga	Hamilton	1887	1889	Vanderbilt Univ.	1905
Sutton, K. I.	Centerville	Hickman	1884	1889	Vanderbilt Univ.	1896
Swaney, A. J.	Gallatin	Sumner	1857	1889	Univ. of N. Y. . . . .	.....
Swink, W. T.	Milan	Gibson	1900	1900	Vanderbilt Univ.	1908
Swope, Frank	Carthage	Smith . . . . .	.....	1889	.....	1904
Sybert, W. E.	Baxter	Putnam . . . . .	.....	.....	Univ. of Tenn.	1904
Tadlock, W. L.	Talbots	Jefferson	1898	.....	Louisville Med. Col.	1903
Tankersley, W. H.	Nashville	Davidson	1897	1898	Vanderbilt Univ.	1901
Tar, H. L.	Jefferson City	Jefferson	1897	1897	Tenn. Med. Col.	1908
Tate, Robt. W.	Bolivar	Hardeman	1895	1896	Col. P. & S., N. Y.	1898
Tatum, R. H.	Chattanooga	Hamilton	1893	1893	Univ. of Tenn.	1900
Taylor, Charles R.	Brownsville	Haywood	1876	1889	Univ. of Ky.	1902
Taylor, H. M.	Greeneville	Greene	1901	1901	Univ. of Tenn.	1903
Taylor, J. P.	Haley	Bedford	1896	1900	Vanderbilt Univ. . . . .	.....
Taylor, Robt. L.	Cleveland	Bradley	1897	1897	Univ. of Nashville	1905
Taylor, R. N.	Chattanooga	Hamilton	1901	1903	Chatt. Med. Col.	1905
Taylor, T. F.	Eaton	Crockett	1897	1897	Vanderbilt Univ.	1903
Taylor, W. B.	Greeneville	Greene	1888	1889	Univ. of Tenn.	1903
Taylor, W. W.	Memphis	Shelby	1876	1889	Bellevue Hos. Med. C.	1890
Teachout, Stanley	Nashville	Davidson	1904	1904	Vanderbilt Univ.	1904
Teas, J. J.	Waverly	Humphreys	1888	1889	Univ. of Tenn.	1903
Thomas, G. R.	Jones' Station	Haywood	1885	1889	Memp. Hos. Med. Col.	1904
Thomas, H. E.	Columbia	Maury	1903	.....	Univ. of Tenn.	1903
Thompson, J. W.	Centerville	Hickman . . . . .	.....	.....	Univ. of Tenn.	1904
Thompson, M. E.	Almy	Scott	1908	1908	Univ. of Tenn.	1903
Thompson, Sid	Humboldt	Gibson	1882	1889	Vanderbilt Univ.	1886
Thompson, T. D.	Pinewood	Hickman . . . . .	.....	1889	.....	1905
Thornton, G. B.	Memphis	Shelby	1860	1889	Univ. of New York	1878
Tidwell, R. S.	Tate's Spring	Hamblen	1880	1889	Univ. of Tenn.	1882
Tigert, H. M.	Nashville	Davidson	1901	1901	Univ. of Nashville	1903
Tillery, J. P.	Knoxville	Knox . . . . .	.....	1889	Univ. of Tenn.	1903
Tillery, R. M.	Concord	Loudon	1893	.....	Tenn. Med. Col.	1903
Timmons, E. A.	Columbia	Maury	1900	1900	Vanderbilt Univ.	1903

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Licn'd.	ALMA MATER.	Joined
Tinsley, P. A.	Dandridge	Jefferson	1895		Univ. of Louisville..	1903
Tipton, E. W.	Kingsport	Sullivan	1899	1899	Univ. of Nashville..	1908
Tittsworth, B. M.	Shady Grove	Jefferson	1897		Birmingham Med. Col.	1903
Tittsworth, I. M.	Jefferson City	Jefferson	1889	1889	Med. Col. of Ohio....	1892
Tomlinson, O. R.	Tate's Spring	Hamblen	1894		Bellevue Hos. Med. Cl	1900
Trail, A. J.	McMinnville	Warren	1895	1902	Univ. of Nashville..	1904
Trapp, J. S.	Taylors	Putnam				
Travis, B. F.	Chattanooga	Hamilton	1879	1889	Louisville Med. Col.	1891
Trawick, A. M.	Nashville	Davidson	1881	1889	Vanderbilt Univ.	1893
Trawick, G. C.	Nashville	Davidson	1899	1899	Vanderbilt Univ.	1903
Trigg, D., Jr.	Johnson City	Washington	1903	1907	Med. Col. of Va.	1907
Trott, W. J.	Tullahoma	Bedford		1889	Vanderbilt Univ.	
Trout, Jas. M.	Jackson	Madison	1906	1906	Vanderbilt Univ.	1908
Tubb, M. M.	McMinnville	Warren		1889		
Tucker, N. M.	Leiper's Fork	Williamson	1898	1898	Univ. of Tenn.	1904
Tucker, R. O.	Nashville	Davidson	1886	1889	Vanderbilt Univ.	1886
Tucker, W. H., Jr.	Halls	Lauderdale	1886	1889	Vanderbilt Univ.	1886
Tullos, A. M.	Gadsden	Crockett	1901	1902	Univ. of South.	1904
Turner, A. E.	Neboville	Gibson	1874	1889	Univ. of Pa.	1903
Turner, C. B. A.	Newhern	Dyer	1906		Vanderbilt Univ.	1906
Turner, B. F.	Memphis	Shelby	1890	1890	Col. of P. & S., N. Y.	1902
Tyree, C. E.	Trenton	Gibson	1880	1889	Vanderbilt Univ.	1901
Vaden, W. E.	Rich Creek	Marshall	1899	1899	Vanderbilt Univ.	1903
Vance, W. K.	Bristol	Sullivan				
Valentine, J. A.	Brunswick	Shelby	1891		Memp. Hos. Med. Col.	1908
Van Horn, J. A.	Memphis	Shelby	1893	1894	Memp. Hos. Med. Col.	
Vaughan, G. E.	Clarksville	Montgomery	1898	1898	Vanderbilt Univ.	1906
Venable, Jas. A.	White Bluff	Dickson	1896	1896	Univ. of Tenn.	1907
Vinsant, C. C.	Pless	Anderson	1907	1907	Univ. of Tenn.	1907
Wadlington, W. J.	Memphis	Shelby	1894	1898	Tulane Univ.	1903
Waite, N. M.	Chattanooga	Hamilton	1893		Univ. of Tenn.	1903
Walden, V. A.	Bethpage	Sumner	1901	1901	Univ. of South.	1908
Walker, B. F.	Dickson	Dickson	1896	1897	Univ. of Nashville..	1906
Walker, D. A.	Trenton	Gibson	1880	1889	Vanderbilt Univ.	1901
Walker, D. H.	White Pine	Jefferson				
Walker, Jno. L.	Wartrace	Bedford	1894	1896	Vanderbilt Univ.	
Walker, N. S.	Dyersburg	Dyer	1890	1891	Tulane Univ.	1897
Walker, P. E.	Sevierville	Sevier	1871	1889	Bellevue Hos. Med. Cl.	1892
Walker, T. D.	Soddy	Hamilton	1893		Univ. of Tenn.	1903
Walker, Thos. J.	Dyersburg	Dyer	1867	1889	Univ. of Louisville..	1903
Walker, W. W.	Dickson	Dickson	1898	1902	Univ. of Nashville..	1903
Wallace, Raymond.	Chattanooga	Hamilton	1902	1902	Univ. of Michigan....	1902
Wallace, W. L.	Knoxville	Knox	1896	1897	Tenn. Med. Col.	1904
Wallace, W. R.	Memphis	Shelby	1908	1908	Col. P. & S., Memp.	1908
Waller, A. L.	Juno	Henderson	1881	1889	Univ. of Tenn.	1904
Waller, J. J.	Oliver Springs	Roane	1892	1893	Southern Med. Col.	1903
Walters, C. A.	Tullahoma	Coffee	1898	1898	Univ. of Tenn.	1903
Walton, L. B.	White House	Robertson		1907	Univ. of Nashville..	1905
Walton, J. M.	Memphis	Shelby				
Walton, M. A.	Whitehouse	Robertson	1886	1907	Vanderbilt Univ.	1907
Wadsden, E.	Memphis	Shelby				
Waters, A. C.	Bodenham	Giles	1900		Univ. of Nashville..	1903
Watkins, R. K.	Spring City	Rhea	1871		Univ. of Nashville..	1904
Watson, F. W.	Union City	Obion	1885	1896	Mo. Med. Col.	1903
Watson, W. P.	Dyersburg	Dyer	1899	1899	Memp. Hos. Med. Col.	1904
Watson, W. T.	Lexington	Henderson	1870	1889	Univ. of Louisville..	1903
Weaver, Thos.	Nashville	Davidson	1897	1898	Univ. of Nashville..	1903
Webb, I. M.	Ooltewah	James	1901	1901	Chatt. Med. Col.	1905
Webb, L. W.	Carroll Station	Madison	1880	1889	Univ. of Louisville..	1903
Webb, W. R.	Hampshire	Maury	1900	1900	Univ. of Nashville..	1903
Webb, W. R.	U. S. Navy	Porto Rico				
Webb, W. R.	Memphis	Shelby	1891	1891	Louisville Med. Col.	1903
Webb, W. S.	Morristown	Hamblen	1894		Univ. of Tenn.	1904
Weesner, B. C.	Springfield	Robertson	1895	1897	Cent. Col. P. & S., Ind	1905
Wells, I. E.	Glass	Oblon	1889	1889	Univ. of Louisville..	1903
Wells, J. J.	Chattanooga	Hamilton	1879	1889	Univ. of Louisville..	1890
Wert, B. S.	Johnson City	Washington	1902		P. & S., Maryland....	
West, E. T.	Chattanooga	Hamilton	1883	1890	Univ. of Pa.	1891
West, Geo. R.	Nashville	Davidson	1898	1899	Vanderbilt Univ.	1904
West, Olin	Knoxville	Knox	1896	1897	Tenn. Med. Col.	1903
West, J. Q. A.	Knoxville	Knox	1894	1904	Univ. of Louisville..	1905
West, W. J.	Memphis	Shelby	1890	1894	Atlanta Med. Col.	1903

NAME.	POST-OFFICE.	SOCIETY.	Grad'd	Lic'n'd	ALMA MATER.	Joined
White, E. H.....	Rives	Obion	1883	1889	Col. of P. & S., Balt.	1903
White, Garrett	Chapel Hill	Marshall	1887	1889	.....	1903
White, Gordon	Nashville	Davidson	1878	1889	Univ. of Baltimore..	1903
White, Geo. R.....	Nashville	Davidson	1905	1904	Univ. of Nashville..	1905
White, S. W.....	Franklin	Williamson	1901	1902	Univ. of Tenn..	1903
White, W. H. L.....	Knoxville	Knox	1900	1905	Univ. of Va.	1906
Whitelaw, W. H.....	Brownsville	Haywood .....	.....	.....	.....	1908
Wilder, Dora L.....	Knoxville	Knox	1906	1906	Tenn. Med. Col. ....	.....
Wilhoite, J. S. J.....	Afton	Greene .....	.....	1889	.....	1904
Wilkes, J. H.....	Columbia	Maury	1862	1889	Univ. of Nashville..	1903
Willett, W. H.....	Adams	Robertson	1891	1892	Vanderbilt Univ.	1905
Williams, A. B.....	Memphis	Shelby	1897	1898	Memp. Hos. Med. Col.	1903
Williams, Edwin	Memphis	Shelby	1895	1898	Col. of P. & S., N. Y.	1903
Willfams, D. H.....	Knoxville	Knox	1888	1889	Bellevue Hos. Med. Cl.	1890
Williams, G. V.....	Chattanooga	Hamilton	1904	1904	Univ. of Louisville..	1904
Williams, G. L.....	Jackson	Madison	1904	1904	Vanderbilt Univ.	1905
Williamson, J. G.....	Columbia	Maury	1867	1889	Univ. of Nashville..	1903
Wilkinson, J. B.....	Stanton	Haywood	1907	1907	Memp. Hos. Med. Col.	1907
Wilkerson, J. H.....	Knoxville	Knox	1891	1891	Chatt. Med. Col. ....	.....
Wilson, F. B.....	Elkton	Giles	1901	....	Vanderbilt Univ.	1903
Wilson, H. B.....	Chattanooga	Hamilton	1887	1889	Bellevue Med. Col.	1890
Wilson, J. C.....	Rockwood	Roane	1893	1893	Vanderbilt Univ.	1906
Wilson, O. H.....	Nashville	Davidson	1892	1892	Vanderbilt Univ.	1892
Wilson, W. E.....	Pulaski	Giles	1873	1889	Bellevue Hos. Med. Cl.	1903
Wilson, J. F.....	Burlison	Tipton .....	.....	.....	.....	1905
Wilson, R. P.....	Centerville	Hickman	1899	1900	Univ. of Tenn.	1904
Winston, A. L.....	Memphis	Shelby	1887	1889	Memp. Hos. Med. Col.	1903
Winters, W. W.....	Greenbrier	Robertson	1904	1904	Univ. of Nashville..	1905
Wise, E. B.....	Chattanooga	Hamilton	1874	1889	Univ. of Louisville..	1903
Witherington, A. S.....	Munford	Tipton	1904	1904	Memp. Hos. Med. Col.	1905
Witherington, J. B.....	Munford	Tipton	1878	1889	Vanderbilt Univ.	1889
Witherspoon, J. A.....	Nashville	Davidson	1878	1889	Univ. of Pa.	1889
Witt, W. H.....	Nashville	Davidson	1894	1895	Vanderbilt Univ.	1901
Wolf, H. S.....	Memphis	Shelby	1898	1898	Mo. Med. Col.	1903
Womack, C. W.....	Lewisburg	Marshall	1870	1889	Ky. School of Med.	1891
Wood, E. G.....	Nashville	Davidson	1885	1899	McGill Univ.	1899
Wood, Frank L.....	Chattanooga	Hamilton	1892	1904	Atlanta Med. Col.	1902
Wood, J. O.....	Morriston	Hamblen	1907	1907	Tenn. Med. Cl., Knoxv.	1908
Wood, T. H.....	Nashville	Davidson	1885	1889	Vanderbilt Univ.	1892
Wood, T. H.....	Bellbuckle	Bedford	1870	1889	Univ. of Nashville..	1908
Woodard, B. H.....	Elkton	Giles .....	.....	.....	.....	.....
Woodard, F. M.....	Springfield	Robertson	1882	1889	Univ. of Louisville..	1903
Woodard, Jno. H.....	Ashwood	Maury	1900	1900	Univ. of Tenn.	1903
Woodruff, J. B.....	Lamont	Robertson	1900	....	Univ. of Tenn.	1904
Woods, J. E.....	Kimmins	Hickman .....	.....	.....	.....	.....
Woodson, L. Miller	Gallatin	Sumner	1885	1889	Univ. of Louisville..	1889
Woodson, Thos. M.....	Gallatin	Sumner .....	.....	.....	.....	.....
Woodward, D. M.....	Careyville	Campbell	1906	1902	Grant Univ., Chatt.	1906
Woodyard, S. W.....	Greeneville	Greene	1891	1895	Col. of P. & S., Balt.	1901
Woolford, J. S. B.....	Highland Park	Hamilton	1896	1896	Univ. of Maryland..	1898
Woolner, A. B.....	Chattanooga	Hamilton	1902	1902	Chatt. Med. Col.	1904
Woolsey, T. H.....	Greeneville	Greene	1900	1900	Univ. of Tenn.	1903
Wright, Guy C.....	Rein	Haywood	1907	1907	Vanderbilt Univ.	1908
Wright, J. L.....	Elbridge	Oblon	1904	1904	Vanderbilt Univ.	1903
Wright, J. M.....	Tiptonville	Lake	1861	1889	Tulane Univ.	1903
Wright, W. M.....	Huntingdon	Carroll	1857	1889	Univ. of Nashville..	1903
Wunschow, O. B.....	Chattanooga	Hamilton	1899	1900	Univ. of the South..	1906
Wyatt, F. E.....	Yorkville	Gibson	1896	1891	Univ. of Nashville..	1903
Wynne, J. A.....	Newbern	Dyer	1894	1894	Vanderbilt Univ.	1904
Yancey, T. B., Jr.....	Somerville	Fayette	1900	1901	Univ. of the South..	1903
Yarbrough, L. A.....	Covington	Tipton	1889	1889	Memp. Hos. Med. Col.	1889
Yarnell, S. I.....	Chattanooga	Hamilton	1887	1889	Vanderbilt Univ.	1893
Yearwood, A. L.....	Fayetteville	Lincoln	1897	1898	Vanderbilt Univ.	1904
Young, B. F.....	Knoxville	Knox	1885	1889	Univ. of Tenn.	1903
Young, J. C.....	Martin	Weakley	1881	1889	Vanderbilt Univ.	1902
Young, W. A.....	Atoka	Tipton .....	.....	.....	.....	1904
Young, W. B.....	Cility	White	1888	1889	Univ. of Tenn.	1891
Youree, W. E.....	Readyville	Rutherford .....	.....	.....	Univ. of Tenn.	1903
Zelziger, T. J.....	Avondale	Hamilton	1887	1889	Cinn. Col. M. & S..	1903
Zemp, E. R.....	Knoxville	Knox	1894	1896	Col. P. & S., Balt..	1903
Zirkle, G. P.....	Kingston	Roane	1902	1903	Tenn. Med. Col.	1903

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